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CONTENTS OF VOLUME 1.

(This volume is bound in three parts.)

1. Report of the Auditor General for the year ended March 31, 1913. VolumeI, Parts A to J, and Volume II, Parts K to U. Presented by Hon. Mr. Foster, January 28, 1914.
Printed for distribution and sessional papers.

1. Report of the Auditor General for the year ended March 31, 1913, Volume III, Parts V to Y. Presented by Hon. Mr. White, January 19. 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. The Public Accounts of Canada, for the fiscal year ended March 31, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Printed for distribution and sessional papers.*

3. Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, January 29, 1914.
Printed for distribution and sessional papers.

3*a*. Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1914. Presented by Hon. Mr. White, March 20, 1914.
Printed for distribution and sessional papers.

4. Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, May 28, 1914.
Printed for distribution and sessional papers.

5. Further Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, June 9, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 3.

6. List of Shareholders in the Chartered Banks of the Dominion of Canada as on December 31, 1913. Presented by Hon. Mr. White, January 19, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 4.

7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada, for five years and upwards prior to December 31, 1913. Presented by Hon. Mr. White, March 16, 1914.
Printed for distribution and sessional papers.

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(This volume is bound in two parts.)

8. Report of Superintendent of Insurance for year ended 1913. Presented by Hon. Mr. White, June 2, 1914.
Printed for distribution and sessional papers.

9. Abstract of Statement of Insurance Companies in Canada for the year ended December 31, 1913. Presented by Hon. Mr. White, June 2, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 6.

10. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1913, Part I.—Canadian Trade. Presented by Hon. Mr. Foster, April 15, 1914.
Printed for distribution and sessional papers.

10*a*. Report of the Department of Trade and Commerce, for the year ended March 31, 1913: Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States. Presented by Hon. Mr. Foster, January 22, 1914.
Printed for distribution and sessional papers.

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10*b*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1913: Part III.—Canadian Trade with Foreign Countries (except France, Germany, the United Kingdom and United States). Presented by Hon. Mr. Foster, April 15, 1914.
Printed for distribution and sessional papers.

10*c*. Report of the Department of Trade and Commerce, for the fiscal year ended March 31, 1913: Part IV.—Miscellaneous Information. Presented by Hon. Mr. Foster, April 27, 1914 .....*Printed for distribution and sessional papers.*

10*d*. Report of the Board of Grain Commissioners for Canada. Presented by Hon. Mr. Foster, June 4, 1914.....*Printed for distribution and sessional papers.*

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10*e*. Report of the Department of Trade and Commerce, for the fiscal year ending March 31, 1913: Part VI.—Subsidized Steamship Services, with Statistics showing Steamship Traffic to December 31, 1913, and Estimates for fiscal year 1914-1915. Presented by Hon. Mr. Foster, March 25, 1914.....*Printed for distribution and sessional papers.*

10*f*. Report of Trade and Commerce for fiscal year ended March 31, 1913: Part VII.—Trade of Foreign Countries, Treaties and Conventions. Presented by Hon. Mr. Foster, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 9.

11. Report of the Department of Customs for the year ended March 31, 1913. Presented by Hon. Mr. Reid, January 22, 1914.....*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 10.

12. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada, for the year ended March 31, 1913. Part I.—Excise. Presented by Hon. Mr. Nantel, January 19, 1914.....*Printed for distribution and sessional papers.*

13. Part II.—Inspection of Weights and Measures, Gas and Electricity. Presented by Hon. Mr. Nantel, January 19, 1914.....*Printed for distribution and sessional papers.*

14. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada for the year ended March 31, 1913. Part III.—Adulteration of Food. Presented by Hon. Mr. Nantel, February 11, 1914..... .....*Printed for distribution and sessional papers.*

15. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended March 31, 1913. Presented by Hon. Mr. Burrell, January 22, 1914 .
Printed for distribution and sessional papers.

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15*a*. Report of the Dairy and Cold Storage Commissioner for the fiscal year ended March 31, 1913. (Dairying, Fruit, Extension of Markets and Cold Storage.) Presented by Hon. Mr. Burrell, May 5, 1914..... .....*Printed for distribution and sessional papers.*

15*b*. Report of the Veterinary Director General for the year ending March 31, 1913. Presented by Hon. Mr. Burrell, February 2, 1914.. *Printed for distribution and sessional papers.*

16. Report of the Director and Officers of the Experimental Farms for the years ending March 31, 1913. Presented by Hon. Mr. Burrell, April 7, 1914.
Printed for distribution and sessional papers.

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17. Criminal Statistics for the year ended September 30, 1912. (Appendix to the Report of the Minister of Trade and Commerce, for the year 1912.) Presented by Hon. Mr. Foster, February 20, 1914.....*Printed for distribution and sessional papers.*

18. Résumé of General Elections of 1896, 1900, 1904, 1908 and 1911, and of By-Elections held between July 11, 1896 and January 1, 1914. Presented by Hon. r. Coderre, January 27, 1914.....*Printed for distribution and sessional papers.*

18a. Return of By-elections for the House of Commons of Canada, held during the year 1913. Presented by Hon. Mr. Coderre, January 27, 1914.
Printed for distribution and sessional papers.

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19. Report of the Minister of Public Works on the works under his control for the fiscal year ended March 31, 1913. Presented by Hon. Mr. Rogers, January 19, 1914.
Printed for distribution and sessional papers.

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20. Report of the Department of Railways and Canals, for the fiscal period from April 1, 1912, to March 31, 1913. Presented by Hon. Mr. Reid, March 20, 1914.
Printed for distribution and sessional papers.

20a. Canal Statistics for the season of Navigation, 1913. Presented by Hon. Mr. Reid, March 12, 1914.....*Printed for distribution and sessional papers.*

20b. Railway Statistics of the Dominion of Canada for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, January 29, 1914.
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20c. Eighth Report of the Board of Railway Commissioners for Canada, for the year ending March 31, 1913. Presented by Hon. Mr. Cochrane, January 22, 1914.
Printed for distribution and sessional papers.

20d. Telephone Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, February 10, 1914.
Printed for distribution and sessional papers.

20e. Express Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, February 20, 1914.
Printed for distribution and sessional papers.

20f. Telegraph Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, February 10, 1914.
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21. Forty-sixth Annual Report of the Department of Marine and Fisheries, for the year 1912-1913.—Marine. Presented by Hon. Mr. Hazen, February 2, 1914.
Printed for distribution and sessional papers.

21b. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the Registry Books of the Dominion of Canada, on December 31, 1913. Presented by Hon. Mr. Hazen, May 1, 1914.....*Printed for distribution and sessional papers.*

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22. Forty-sixth Annual Report of the Department of Marine and Fisheries, 1912-13.—Fisheries. Presented by Hon. Mr. Hazen, January 19, 1914.
Printed for distribution and sessional papers.

23. Supplement to the Forty-sixth Annual Report of the Department of Marine and Fisheries for the fiscal year 1912-13.—Steamboat Inspection Report. Presented by Hon. Mr. Hazen, March 27, 1914.....*Printed for distribution and sessional papers.*

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24. Report of the Postmaster General, for the year ended March 31, 1913. Presented by Hon. Mr. Pelletier, March 12, 1914.....*Printed for distribution and sessional papers.*

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(This volume is bound in two parts.)

25. Annual Report of the Department of the Interior, for the fiscal year ending March 31, 1913. —Volume I. Presented by Hon. Mr. Roche., February 23, 1914.
Printed for distribution and sessional papers.

25. Annual Report of the Department of the Interior, for the fiscal year ending March 31, 1913. —Volume II. Presented by Hon. Mr. Roche, March 9, 1914.
Printed for distribution and sessional papers.

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25*c*. Report of Progress of Stream Measurements, for the calendar year 1913, prepared under the direction of F. H. Peters, C.E., Commissioner of Irrigation. Presented by Hon. Mr. Roche, March 26, 1914.....*Printed for distribution and sessional papers.*

25*d*. Twelfth Report of the Geographic Board of Canada, for the year ending June 30, 1913. Presented by Hon. Mr. Roche, February 2, 1914.
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25*e*. Manitoba Water-powers,

25*f*. Railway Belt Hydrographic Survey for 1911-1912. Presented, 1914.

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26. Summary Report of the Geological Survey, Department of Mines, for the calendar year 1912. Presented by Hon. Mr. Coderre, 1914.
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26*a*. Summary Report of the Mines Branch for the calendar year 1912. Presented 1914.
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27. Report of the Department of Indian Affairs for the year ended March 31, 1913. Presented by Hon. Mr. Roche, January 27, 1914.....*Printed for distribution and sessional papers.*

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28. Report of the Royal Northwest Mounted Police, 1913. Presented by Hon. Mr. Borden, January 19, 1914.....*Printed for distribution and sessional papers.*

28*a*. Statement of Magisterial cases entered, and convictions obtained by the Royal Northwest Mounted Police in the Provinces of Alberta and Saskatchewan, the Yukon Territory and a portion of Manitoba, during the years 1909 to 1913. Presented by Hon. Mr. Borden, February 16, 1914.....*Not printed.*

29. Report of the Secretary of State of Canada for the year ended March 31, 1913. Presented by Hon. Mr. Coderre, February 9, 1914....*Printed for distribution and sessional papers.*

29*a*. Report of the Secretary of State for External Affairs for the year ended March 31, 1913. Presented by Hon. Mr. Borden, January 19, 1914.
Printed for distribution and sessional papers.

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29*c*. Documents *re* Constitutional History of Canada.—(Senate).
Printed for distribution and sessional papers.

29*c*. Public Archives.—Documents relating to the Constitutional History of Canada, 1791-1818, selected and edited with notes by Arthur G. Doughty and Duncan A. McArthur. Presented by Hon. Mr. Coderre, March 27, 1914.
Printed for distribution and sessional papers.

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30. The Civil Service List of Canada, 1913. Presented, 1914.
Printed for distribution and sessional papers.

31. Fifth Annual Report of the Civil Service Commission of Canada for the year ended August 31, 1913. Presented by Hon. Mr. Coderre, March 18, 1914.
Printed for distribution and sessional papers.

32. Annual Report of the Department of Public Printing and Stationery for the fiscal year ended March 31, 1913. Presented by Hon. Mr. Coderre, March 11, 1914.
Printed for distribution and sessional papers.

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33. The Report of the Joint Librarians of Parliament. Presented by the Hon. The Speaker, January 15, 1914.....*Not printed.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the fiscal year ended March 31, 1913.....*Printed for distribution and sessioanl papers.*

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35. Report of the Militia Council for the Dominion of Canada, for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Hughes, March 9, 1914.
Printed for distribution and sessional papers.

36. Report of the Department of Labour for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Crothers, January 19, 1914....*Printed for distribution and sessional papers.*

36*a*. Sixth Report of the Registrar of Boards of Conciliation and Investigation of the proceedings under "The Industrial Disputes Investigation Act, 1907," for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Crothers, January 19, 1914.
Printed for distribution and sessional papers.

36*b*. Report on Strikes and Lockouts in Canada, from 1901 to 1912. Presented by Hon. Mr. Crothers, January 19, 1914 .....*Printed for distribution and sessional papers.*

37. Ninth Annual Report of the Commissioners of the Transcontinental Railway, for the year ended March 31, 1913. Presented by Hon. Mr. Cochrane, January 22, 1914.
Printed for distribution and sessional papers.

37*a*. Interim Report of the Commissioners of the Transcontinental Railway, for the nine months ended December 31, 1913. Presented by Hon. Mr. Cochrane, February 18, 1914.
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38. Report of the Department of the Naval Service, for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Hazen, January 22, 1914.
Printed for distribution and sessional papers.

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39. A detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (4th December, 1912) submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Coderre, January 22, 1914.....*Not printed.*

40. Return to an Order of the House of April 7, 1913, for a copy of all accounts, vouchers and charges incurred by and relating to the Lobster Hatchery and Patrol Boat *Davis* during the season of 1912, to December 31, 1912, with the names of the officers and crews, and the wages paid to each. Presented January 19, 1914.—*Mr. Kyte*.....*Not printed.*

41. Return to an Order of the House April 21, 1913, for a Return showing the names and the respective ranks and positions of the officers now on duty on the *Niobe* at Halifax, under the Department of Naval Affairs; the number of men now on duty as seamen or other like positions on the *Niobe*; the number of men dropped from the service on the *Niobe* since July 1, 1912; and if any efforts have been made to recruit men for the *Niobe* since July 1, 1912. Presented January 19, 1914.—*Mr. Macdonald*...*Not printed.*

42. Return to an Order of the House of May 12, 1913.—1. For a Return showing the respective names, duties and salaries of Officials of the Immigration Department of both Inside and Outside Service on March 31, 1911.

2. The respective names, duties and salaries of Officials of the Immigration Department of both Inside and Outside Service on March 31, 1913. Presented January 19, 1914.—*Mr. Oliver* ..... *Not printed.*

43. Return to an Order of the House of February 24, 1913, for a copy of all regulations relating to the disposition of Dominion Lands made by the Minister of the Interior from October 12, 1911, to January 1, 1912, and of the regulations for the placing of half-breed scrip on homestead or other lands, made by the Minister of the Interior from October 12, 1911, to January 1, 1912. Presented January 19, 1914.—*Mr. Oliver.*
Not printed.

44. Return to an Order of the House of January 15, 1913, for a copy of all charges, correspondence, letters, telegrams nd other documents relative to the dismissal of Horace Rindress, Quarantine Medical Officer at North Sydney, in the Riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented January 19, 1914.—*Mr. McKenzie*.....*Not printed.*

44*a*. Supplementary Return to an Order of the House of December 11, 1912, for a copy of all papers, documents and correspondence relating to the dismissal of A. T. Doucet, Postmaster and Collector of Customs at Salmon River, Digby County, N.S. Presented January 19, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

44*b*. Return to an Order of the House of April 21, 1913, for a copy of the charges made against Alexis Bourque, Storm Signal Agent at Bonaventure, on which he was dismissed by the Minister of Marine and Fisheries, and a copy of all letters and other documents bearing on the appointment of his successor. Presented January 23, 1914.—*Mr. Marcil (Bonaventure)*..... ..... *Not printed.*

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44*c*. Return to an Order of the House of January 29, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Marine and Fisheries, or any Department of the Government, relating to the dismissal of Patrick Conway, Lightkeeper at White Head Island, N.S., and if there was an investigation the names of the witnesses, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented January 21, 1914.—*Mr. Sinclair*..... *Not printed.*

44*d*. Return to an Order of the House of May 7, 1913, for a copy of all papers, documents, telegrams and correspondence in connection with the dismissal of Captain Wm. Smith, Coxswain, of the lifeboat at Blanche, Shelburne County, N.S. Presented January 21, 1914.—*Mr. Law*..... *Not printed.*

44*e*. Return to an Order of the House of March 3, 1913, for a Return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the Departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the Departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any Department in connection with the said dismissals and investigations or removals from office. Presented January 21, 1914.—*Mr. McKenzie*.....*Not printed.*

44*f*. Return to an Order of the House of the 23rd April, 1913, for a copy of the charges made by Messrs. J. A. Mousseau, A. Godbout and J. Blondin, against Jos. E. A. Landry, keeper of the lighthouse at St. Omer, Quebec, on which he was dismissed for alleged political partisanship. Presented January 21, 1914.—*Mr. Marcil (Bonaventure)*. *Not printed.*

44*g*. Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Colin Melsaac, preventive officer at Port Hood, Inverness County, N.S. Presented January 21, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

44*h*. Return to an Order of the House of the 19th May, 1913, for a copy of all petitions and correspondence relating to the dismissal of Mr. Pesha, postmaster at Kent Bridge, Ontario. Presented January 22, 1914.—*Sir W. Laurier*.....*Not printed.*

44*i*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department or any department of the Government, relating to the dismissal of John F. Reeves, postmaster at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*..... *Not printed.*

44*j*. Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Havelock McLeod, postmaster at Big Intervale, North East Margaree, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

44*k*. Return to an Order of the House of the 21st April, 1913, for a copy of all documents, petitions, correspondence, messages, inquiries, reports, &c., relating to the dismissal of S. Lapointe, postmaster of St. Eloi, County of Temiscouata, and to the appointment of his successor. Presented January 22, 1914.—*Mr. Gauvreau*.....*Not printed.*

44*l*. Return to an Order of the House of the 3rd February, 1913, for a copy of all correspondence, letters, telegrams and other documents relative to the dismissal of William Bow, postmaster at Winchester Village, County of Dundas, and of all recommendations for the appointment of his successor. Presented January 22, 1914.—*Mr. MacNutt*. *Not printed.*

44*m*. Return to an Order of the House of the 26th March, 1913, for a copy of all charges, correspondence, letters, telegrams, petitions and other documents relating to the dismissal of Mrs. Ellen O'Neil, postmistress at O'Neil's post office, Parish of Moncton, County of Westmorland, New Brunswick, and of all evidence, if any, taken in regard to the same, and of all reports concerning same; and also a copy of all recommendations, correspondence, letters, telegrams, petitions and other documents relating to the appointment of a successor, or of Robert C. Kelly as postmaster of or at the said O'Neil post office, and of all reports, if any, as to the proper location of the office. Presented January 22, 1914. —Mr. Emmerson .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44*n*. Return to an Order of the House of the 21st April, 1913, for a copy of the charges made against Alex. Labillois, postmaster of Miguasha, on which his dismissal took place, and of all letters and documents regarding the appointment of John Caissy in his place. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44*o*. Return to an Order of the House of the 21st April, 1913, for a copy of all letters and other documents containing evidence or charges against Madame Z. Marcotte, postmistress of Nouvelle West, Bonaventure County, on which the Postmaster General acted in removing her from office, and also of letters and other documents regarding the appointment of Mr. Lazare Fallu in her stead. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44*p*. Return to an Order of the House of the 28th April, 1913, for a copy of all complaints, accusations, correspondence, petitions, and telegrams respecting the dismissal of Joseph Verault, postmaster at Guay, County of Lévis, of the evidence and report made following the inquiries held by the inquiring Commissioner Smith and the inquiring Commissioner Jolicœur in this matter; also the names of the witnesses summoned and heard, with a copy of the evidence heard at each inquiry, the names of those who represented the Government at these inquiries, and a detailed statement of the expenses caused by these inquiries, with a copy of all documents respecting the appointment of his successor, such as petitions, letters of recommendation, &c. Presented January 22, 1914.—*Mr. Bourassa*..... *Not printed.*

44*q*. Return to an Order of the House of the 2nd June, 1913, for a copy of all telegrams, papers and correspondence in the possession of the Post Office Department, or with any of the officials thereof, regarding the removal from office of the postmaster of Osage, Saskatchewan, and of the appointment of a successor thereto; and of all correspondence bearing upon the said removal or appointment with the post office inspector for that portion of the province of Saskatchewan, and of all other letters and documents with respect thereto. Presented January 22, 1914.—*Mr. Carvell*.....*Not printed.*

44*r*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the dismissal of George Taylor, postmaster at Bickerton, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*..... *Not printed.*

44*s*. Return to an Order of the House of the 21st April, 1913, for a copy of all correspondence, telegrams, complaints, affidavits, reports, recommendations, requests, certificates and other documents, relating to the dismissal of Mademoiselle Paul Hus, as postmistress of the Parish Ste. Victoire, County of Richelieu, and the appointment of Mr. Paul Bardier, of the same place, as postmaster. Presented January 22, 1914.—*Mr. Cardin.*
Not printed.

44*t*. Return to an Order of the House of the 3rd March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Parker S. Hart, postmaster at South Manchester, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same, and also a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*..... *Not printed.*

44*u*. Return to an Order of the House of the 17th February, 1913, for a copy of all complaints and charges made against Charles L. Gass, late postmaster at Bayfield, Antigonish County, of the evidence taken, if any, before Commissioner Duchemin, and of his report thereon, and of all letters, telegrams and documents of every kind relating to his dismissal and the appointment of his successor. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

44*v*. Return to an Order of the House of the 27th January, 1913, for a copy of all documents, correspondence, letters, reports, &c., relating to the dismissal of Madame Belzil, postmistress at St. Octave, County of Rimouski, and the appointment of her successor. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

44*w*. Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of John McDonnell, postmaster at Essex, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

44*x*. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, telegrams and documents in connection with the dismissal of James Bain, from the postmastership of Ninga post office, Ninga, Manitoba. Presented January 22, 1914.—*Mr. Turriff*..... *Not printed.*

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44*y*. Return to an Order of the House of the 9th April, 1913, for a copy of all letters, petitions, telegrams, complaints, reports and other papers and documents in the possession of the Post Office Department, relating to the dismissal of William McKinnon, postmaster at Erinville, Guysborough County, N.S., and the appointment of Daniel Kenny as successor; and if there was an investigation in connection with the dismissal of the said William McKinnon, the names of all witnesses examined, a copy of the evidence and report of the commissioner, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*.....*Not printed.*

44*z*. Return to an Order of the House of the 7th May, 1913, for a copy of all correspondence, evidence and reports in connection with the dismissal of J. N. Cloutier, postmaster at St. Benoit Labre, County of Beauce, Quebec. Presented January 22, 1914.—*Mr. Béland.* *Not printed.*

44 (2*a*). Return to an Order of the House of the 12th February, 1913, for a copy of all letters, telegrams, papers and documents relative to the dismissal of Mrs. Weave, postmistress at Coal Creek, Queens County, N.B., and of the appointment of Michael L. Knox. Presented January 22, 1914.—*Mr. McLean (Sunbury)*.....*Not printed.*

44 (2*b*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence and documents of any kind whatsoever relating to the dismissal of postmasters in Bonaventure County, by the present administration, not already ordered and brought down. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44 (2*c*). Return to an Order of the House of the 28th April, 1913, for a copy of all petitions, complaints, and correspondence containing any charges against Alexander Fraser, postmaster at Fraser's Grant, Antigonish County, N.S., and of all other documents and correspondence on the file in relation thereto. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)* .....*Not printed.*

44 (2*d*). Partial return to an Order of the House of the 10th December, 1912, for a return showing all public officers removed by the present Government in the District of Portneuf, together with the name and duties of each person, the reasons for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held. Presented January 22, 1914.—*Mr. Delisle* ..... *Not printed.*

44 (2*e*). Return to an Order of the House of the 15th January, 1913, for a return showing a list of the postmasters dismissed or removed by the present Government in the County of Two Mountains, the names of such persons, the reason for their dismissal, the nature of the complaints brought aginst them, and a copy of all correspondence and petitions relating thereto, and reports of inquiry in the cases where such have been held; also the names of their successors. Presented January 22, 1914.—*Mr. Ethier*....*Not printed.*

44 (2*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Thomas Chalmer McLean, postmaster at Ivera, Middle River, Riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. McKenzie*.....*Not printed.*

44 (2*g*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports and other documents relative to the dismissal of C. P. Blanchard, postmaster at Truro, Nova Scotia, and the appointment of his successor. Presented January 22, 1914.—*Mr. Macdonald* .....*Not printed.*

44 (2*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, evidence, reports, letters, correspondence, &c., relating to the dismissal of Samuel Atwood, Atwood's Brook, Shelburne County, N.S. Presented January 22, 1914.—*Mr. Law* .....*Not printed.*

44 (2*i*). Return to an Order of the House of the 3rd February, 1913, for a return showing the names of the postmasters in the County of Berthier dismissed since the 21st September, 1911; their respective parishes, the date of their dismissals and the reason alleged; if an inquiry was held in each case; on whose recommendation were these dismissals made; the names of those appointed as their successors and on whose recommendation were they appointed. Presented January 22, 1914.—*Mr. Béland*.....*Not printed.*

44 (2*j*). Return to an Order of the House of the 3rd March, 1913, for a copy of all complaints, accusations, correspondence, petitions and telegrams, respecting the dismissal of Wilfrid Pellemarre, postmaster at Hervey Junction, County of Portneuf, and of all documents respecting the appointment of his successor, such as petitions, letters of recommendation, &c., and also of the evidence and reports made after the inquiry held by the inquiring commissioner; together with a detailed statement of the expenses caused by this inquiry. Presented January 22, 1914.—*Mr. Delisle*.....*Not printed.*

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44 (2*k*). Return to an Order of the House of the 16th February, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the dismissal of Rufus D. Carrigan, postmaster at Sand Point, Guysborough County, N.S., and if there was an investigation, the names of all witnesses examined, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair* ..... *Not printed.*

44 (2*l*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Daniel Dunlop, postmaster at New Campbellton, Riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of the investigation held by H .P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. McKenzie*..... *Not printed.*

44 (2*m*). Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of Duncan Cameron, postmaster at Craigmore, Inverness County, Nova Scotia. Presented January 22, 1914. —*Mr. Chisholm (Inverness)*..... *Not printed.*

44 (2*n*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports, charges and other documents relating to the dismissal of Angus Cameron, late postmaster at Fairlight, Sask., and of the evidence taken at the investigation held by Mr. Dorsett. Presented January 22, 1914.—*Mr. Turriff*....*Not printed.*

44 (2*o*). Return to an Order of the House of the 15th January, 1913, for a copy of all documents, correspondence, petitions and telegrams respecting the dismissal of M. Sauriol, postmaster of St. Janvier, County of Terrebonne, and the appointment of his successor. Presented January 22, 1914.—*Mr. Ethier*..... *Not printed.*

44 (2*p*.) Return to an Order of the House of the 2nd June, 1913, for a copy of all petitions, letters, telegrams and resolutions in connection with the changes made in the names of the post offices at Letches Creek Crossing and Letches Creek, North Cape Breton, N.S., the dismissal of Donald Johnston, the former postmaster at Letches Creek, and the appointment of his successor. Presented January 22, 1914.—*Mr. McKenzie.* *Not printed.*

44 (2*q*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of James McLees, postmaster at Bishop Mills, County of Grenville, Province of Ontario, and the appointment of his successor. Presented January 22, 1914. —*Mr. Proulx* ..... *Not printed.*

44 (2*r*). Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of Mrs. Sarah C. Rankin, postmistress at S. W. Ridge Mabou, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*..... *Not printed.*

44 (2*s*).Partial Return to an Order of the House of the 19th March, 1913, for a Return showing in detail the number of dismissals from the public service during the period from June 23, 1896, to September 21, 1911, in the County of Cumberland, Nova Scotia, in connection with any department of the public service; together with the names of the dismissed officials or employees, their ages at the time of entering the public service, the length of their period of service with dates, the amount of their remuneration, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communication with respect to each such case of dismissal, and of all minutes of evidence on investigation, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all persons appointed to fill vacancies caused by such dismissals, their ages at the date of appointment, the amount of their remuneration, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with said dismissals and investigations or removal from office. Presented January 22, 1914.—*Mr. Rhodes*..... *Not printed.*

44 (2*t*). Partial Return to an Order of the House of the 29th April, 1913, for a Return showing all employees of the Dominion dismissed in the County of Three Rivers and St. Maurice since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reason for dismissal, whether there has been an investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau.* *Not printed.*

44 (2*u*). Partial Return to an Order of the House of the 10th December, 1912, for a return showing the number of dismissals from public offices by the present Government to this date in the constituency of Regina, together with the names of the dismissed officials, the reasons for their dismissals, the complaints against such officials, and a copy of all correspondence relating thereto and reports of inquiries in cases where such have been held in respect of the same. Presented January 22, 1914.—*Mr. Martin (Regina).* *Not printed.*

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44 (2*v*). Return to an Order of the House of the 10th December, 1912, for a return showing all the public officers dismissed by the present Government in the electoral district of Kamouraska, with the names and duties of such persons respectively, the reason for their dismissal, the nature of the complaints brought against them, also of all correspondence relating thereto and reports of inquiries in cases where such have been held. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

44 (2*w*). Partial Return to an Order of the House of the 10th February, 1913, for a return showing in detail the number of dismissals from public offices by the present Government to this date in the County of Prince, Prince Edward Island, giving the names of the dismissed officials, the reasons for their dismissal, the complaints against such officials and a copy of all the correspondence with respect to the same and of all notes of evidence and reports of investigations where such were held; also the names of all parties appointed to fill the vacancies caused by such dismissals and the names of the persons by whom the same have been recommended for appointment. Presented January 22, 1914.—*Mr. Richards*.....*Not printed.*

44 (2*x*). Return to an Order of the House of the 10th December, 1912, for a return showing the detail and number of dismissals from public offices by the present Government to this date in the riding of Strathcona, together with the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigations, where such were held. Presented January 22, 1914.—*Mr. Douglas*.....*Not printed.*

44 (2*y*). Partial Return to an Order of the House of the 10th December, 1912, for a return showing the detail and number of dismissals from public offices by the present Government to this date in the riding of Saltcoats, Sask., together with the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and all reports of investigations, in cases where such were held. Presented January 22, 1914.—*Mr. MacNutt.* *Not printed.*

44 (2*z*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Champlain since October 15, 1911, to date, the employment of each man, the salary each was receiving at the time of his dismissal, the reasons for dismissals, whether there has been any investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau*.....*Not printed.*

44 (3*a*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and position of employment, by the present Government since the 11th day of October, 1911, to this date, in the County of Cumberland, Nova Scotia, not including those for which returns have already been ordered, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removal from office. Presented January 22, 1914. —*Mr. Kyte*.....*Not printed.*

44 (3*b*). Return to an Order of the House of the 3rd February, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment, by the present Government since the first day of October, 1911, to this date, in the County of Westmorland, New Brunswick, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made, save and except the case of George H. Cochrane, Collector of Customs at Moncton (the papers for which have been already moved for); together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of government, or of the Government Railways Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railway; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respecitvely recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 22, 1914.—*Mr. Emmerson*.....*Not printed.*

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44 (3*c*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Annapolis, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill vacancies caused by such dismissals ,and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

44 (3*d*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Nicolet since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reasons for dismissal, whether there has been an investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau*.....*Not printed.*

44 (3*e*). Return to an Order of the House of the 29th January, 1913, for a return showing in detail the number of dismissals from public offices by the present Government to this date in the constituency of Victoria, Alberta, together with the names of the dismissed officials, the reason of their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same and of all notes of evidence and of the reports of investigations where such were held; also the names of all parties appointed to fill the vacancies caused by such dismissals and the names of the persons by whom the same have been recommended for appointment. Presented January 22, 1914.—*Mr. White (Alberta)*.....*Not printed.*

44 (3*f*). Officials dismissed in the constituency of Shelburne and Queens, N.S.—(Senate). *Not printed.*

44 (3*g*). Postmasters dismissed in the County of Antigonish, N.S.—(*Senate*).....*Not printed.*

44 (3*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams, and other documents relating to the dismissal of Dr. Freeman O'Neil, from the office of port physician at Louisburg, Cape Breton South, Nova Scotia, and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same. Presented January 26, 1914.—*Mr. Sinclair.* *Not printed.*

44 (3*i*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. And also—Supplementary return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reasons for their respective dismissals the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented Janaury 22, 1914.—*Mr. Sinclair*.....*Not printed.*

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44 (3*j*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the constituency of Queen's, Shelburne, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already been passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations of removals from office. Presented January 27, 1914.—*Mr. Law*.....*Not printed.*

44 (3*k*). Partial Return to an Order of the House of the 19th March, 1913, for a list of public officers employed in the city of Quebec, in the Departments of Inland Revenue, Railways and Canals, the Transcontinental Railway, Customs, Immigration, Marine and Fisheries, Public Works and Militia, the names and duties of such persons, the reason for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto, and of reports of inquiry in the cases where such inquiries were held. Presented January 26, 1914.—*Mr. Lachance*.....*Not printed.*

44 (3*l*). Return to an Order of the House of the 29th January, 1913, for a return showing all the public officers removed by the present Government in the District of L'Assomption, together with the names and duties of such persons, the reasons for their dismissal, the nature of the complaints brought against them; also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held, with the names of the successors of the dismissed officers. Presented January 26, 1914.—*Mr. Seguin.* *Not printed.*

44 (3*m*). Further Supplementary Return to an Order of the House of the 7th February, 1912, for a return showing for each department of the Government the names, post office addresses, offices, employment, and salaries of all persons employed either in the inside or outside service thereof, and of such persons not in the Civil Service, employed by the Government in any department, on the tenth day of October, 1911, who have been removed from office or employment by dismissal; specifying in each case the manner of and grounds of such dismissals and the length of notice given to the persons removed, and also indicating in each case whether an inquiry was or was not held prior to such dismissal. Presented January 26, 1914.—*Mr. Kyte*.....*Not printed.*

44 (3*n*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; togeaher with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 28, 1914. —*Mr. Sinclair* .....*Not printed.*

44 (3*o*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence, telegrams, inquiries and reports respecting the dismissal of Philias Hable, lightkeeper at St. Louis de Lotbinière, County of Lotbinière, Quebec. Presented February 4, 1914.—*Mr. Fortier*.....*Not printed.*

44 (3*p*). Return to an Order of the House of the 19th May, 1913, for a copy of all correspondence, complaints, petitions and reports connected with the dismissal of Fishery Overseer Magneault at Seven Islands, and the appointment in his place of Elzear Levesque. Presented February 10, 1914.—*Mr. Béland*.....*Not printed.*

44 (3*q*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Maskinonge, since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reasons for dismissal, whether there has been investigation or not, and the names and places of residence of the men appointed to replace them. Presented February 10, 1914.—*Mr. Bureau* .....*Not printed.*

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44 (3*r*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. McKenzie*.....*Not printed.*

44 (3*s*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public office and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Colchester, Nova Scotia, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. Macdonald*.....*Not printed.*

44 (3*t*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Hants, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the name of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also of the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. Chisholm (Inverness)* .....*Not printed.*

44 (3*u*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendations, and reports concerning the dismissal of Miss Eugenie Dorion, an employee in the office of the post office inspector at Quebec; the reasons for her dismissal, the nature of the complaints brought against her, if any, the names of the persons who brought these complaints, also a copy of all correspnodence relating thereto, and the report of inquriy, if there was one held. Presented February 20, 1914.—*Mr. Wilson (Laval)*.....*Not printed.*

44 (3*v*). Return to Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents in the possession of the Post Office Department, relating to the dismissal of James R. Laing, postmaster at Liscombe, N.S., and of the facts taken, and report of investigation in regard to the same, if any, a detailed statement of the expenses of such investigation, together with a copy of all recommendations, letters, telegrams, and other papers relating to the appointment of his successor. Presented February 23, 1914.—*Mr. Sinclair*.....*Not printed.*

44 (3*w*). Return to an Order of the House of the 5th June, 1913, for a copy of all correspondence, papers, &c., in connection with the dismissal of Mr. A. L. Desève, officer in charge of the fishery hatchery at Magog, Quebec, and the appointment of Mr. L. A. Audet to the said position. Presented February 23, 1914.—*Sir W. Laurier*.....*Not printed.*

44 (3*x*). Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams and other documents relating to the removal of Jas. T. Richardson as sub-Collector of Customs at Humboldt, Saskatchewan, and the appointment of a successor. Presented February 23, 1914.—*Mr. Neely*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (3*y*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing the number of dismissals from public offices by the present Government to this date in the constituency of Regina, together with the names of the dismissed officials, the reasons for their dismissals, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of any investigations held in respect of the same. Presented February 24, 1914.—*Mr. Martin* (*Regina*) ..... *Not printed.*

44 (3*z*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, &c., in connection with the dismissal of Mr. Hicks, of Bridgetown, N.S., from the customs service in 1913. Presented February 24, 1914.—*Mr. Maclean* (*Halifax*) ..... *Not printed.*

44 (4*a*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Ralph Harris, sub-collector of customs at Pelee Island, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke* (*Essex*) ..... *Not printed.*

44 (4*b*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Aylmer Orton, customs officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke* (*Essex*). *Not printed.*

44 (4*c*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Frederick Forster, sub-collector of customs at Kingsville, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke* (*Essex*) ..... *Not printed.*

44 (4*d*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Interior Department, relating to the dismissal of Andrew Darragh, immigration officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke* (*Essex*). *Not printed.*

44 (4*e*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Interior Department, relating to the dismissal of John Halstead, immigration officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke* (*Essex*). *Not printed.*

44 (4*f*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence, telegrams, inquiries, and reports, respecting the dismissal of Napoleon Daigle, lighthouse keeper at Barre à Boulard, Parish of St. Louis de Lotbinière, Quebec. Presented March 2, 1914.—*Mr. Fortier* ..... *Not printed.*

44 (4*g*). Supplementary Return to an Order of the House of the 19th March, 1913, for a return showing in detail the number of dismissals from the public service during the period from June 23, 1896, to September 21, 1911, in the County of Cumberland, Nova Scotia, in connection with any department of the public service; together with the names of the dismissed officials or employees, their ages at the time of entering the public service, the length of their period of service with dates, the amount of their remuneration, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissals, and of all minutes of evidence on investigation, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all persons appointed to fill vacancies caused by such dismissals, their ages at the date of appointment, the amount of their remuneration, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with said dismissals and investigations or removal from office. Presented March 2, 1914.—*Mr. Rhodes* ..... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (4*h*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of the Postmaster General, relating to the dismissal of James H. Smart, postmaster at Kingsville, Ont., and if there was an investigation, the names of all the witnesses and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke (Essex)* .....*Not printed.*

44 (4*i*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of John A. Roy from the position of postmaster at Maitland, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* .....*Not printed.*

44 (4*j*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of Thomas Nelson, from the position of postmaster at Scotch Village, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* .....*Not printed.*

44 (4*k*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of Albert McHeffey from the position of postmaster at Shubenacadie, County of Hants. Presented March 2, 1914. —*Mr. Macdonald* .....*Not printed.*

44 (4*l*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of C. Stewart McPhee from the position of postmaster at Enfield, County of Hants. Presented March 2, 1914.— *Mr. Macdonald* .....*Not printed.*

44 (4*m*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the first day of February, 1913, to date, in the County of Westmorland, New Brunswick, in connection with any of the departments of the public service, except the Post Office Department; together with the names of the dismissed officials or employees, the reasons for their respective dismissal, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government, or of the Government Railway Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railways; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented March 3, 1914.—*Mr. Emmerson* .....*Not printed.*

44 (4*n*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of D. Dishaw, employee of the Marine shipyard at Prescott, Ontario. Presented March 3, 1914.—*Mr. Turriff*.....*Not printed.*

44 (4*o*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relative to the dismissal of A. Michael Russell from the position of caretaker of the drill hall at Windsor, County of Hants. Presented March 3, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

44 (4*p*). Return to an Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mr. A. Goyette, postmaster at St. Valerien de Milton, Shefford County, Quebec, and of the evidence taken, and of the reports of investigation held by Dr. W. L. Shurtleff in regard to the same. Presented March 5, 1914.—*Mr. Boivin*.....*Not printed.*

44 (4*q*). Return to an Order of the House of the 21st April, 1913, for a copy of the evidence and report in the investigation held by Mr. W. A. E. Flynn, in the case of P. D. Bourdages, keeper of the lighthouse at Bonaventure Point, Quebec, of the charges made against the said Bourdages by Ovide Bourdages, Raymond Bourdages, Pierre Henry, J. A. Mousseau and D. Champoux. Presented March 5, 1914.—*Mr. Marcil (Bonaventure)* .....*Not printed.*

44 (4*r*). Return to an Order of the House of the 21st April, 1913, for a copy of the charges made by Messrs. W. S. Montgomery, J. I. Boudreau, N. Bourg, J. A. Mousseau, N. Boudreau, against Louis Bujold, keeper of the lighthouse at Carleton Point, Quebec. Presented March 5, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44 (4*s*). Return to an Order of the House of the 11th February, 1914, for a return showing reasons for the dismissal of Mr. Shinbine, caretaker of the Immigration Hall at Edmonton, the date of his appointment and of dismissal, and salary at time of dismissal; also the name of caretaker appointed in his place, with date of appointment, salary and qualifications. Presented March 6, 1914.—*Mr. Oliver*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (4*t*). Return to an Order of the House of the 11th February, 1914, for a return showing the reasons for the dismissal of Mr. Webster, immigration agent at Edmonton; the date of his appointment and of dismissal, and salary at time of dismissal; also the name of the agent appointed in his place, with date of appointment, salary and qualifications? Presented March 6, 1914.—*Mr. Oliver*.....*Not printed.*

44 (4*u*). Return to an Order of the House of the 11th February, 1914, for a return showing reasons for the dismissal of Jacob Mohr, interpreter for the immigration agency at Edmonton; the date of his appointment and of dismissal, and salary at time of dismissal; also the name of the interpreter appointed in his place with date of appointment, salary and qualifications. Presented March 6, 1914.—*Mr. Oliver*.....*Not printed.*

44 (4*v*). Return to an Order of the Houe of the 11th February, 1914, for a return showing reasons for the dismissal of Mr. P. Tomkins, Dominion Lands Agent at Grouard, the date of his appointment and of dismissal, and salary at time of dismissal; also the name of agent appointed in his place, with date of appointment and salary. Presented March 6, 1914.—*Mr. Oliver*.....*Not printed.*

44 (4*w*). Return to an Order of the House of the 2nd February, 1914, for a copy of all documents bearing upon dismissals and appointments of officials of the Inland Revenue Department in Bonaventure County since January 1, 1913, to date; together with a statement showing the salaries, emoluments and amounts paid to the new appointees since appointment, compared with amounts paid officials for corresponding periods in 1911 and 1912. Presented March 6, 1914.—*Mr. Marcil (Bonaventure)*....*Not printed.*

44 (4*x*). Return to an Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mr. Arthur Dupuis, postmaster at Pontbriand, County of Megantic, Quebec, and of the evidence taken and of the reports of investigation held by Dr. W. L. Shurtleff in regard to the same. Presented March 6, 1914...*Mr. Pacaud*.....*Not printed.*

44 (4*y*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents relating to the dismissal of Jos. Serguis Archambault, as postmaster of the town of Terrebonne, and to the appointment of George Beausoldeil, as his successor. Presented March 6, 1914. *Mr. Seguin* .....*Not printed.*

44 (4*z*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, reports and all other papers relating to the dismissal of Martin Lanigan, postmaster at Sexton, County of Kent, New Brunswick, and of the minutes of evidence of any investigation or inquiry held relating to the said dismissal, and of all and any charges and recommendations connected therewith; also a copy of all letters written to the Postmaster General or to any official of the Post Office Department, by F. J. Robidoux, M.P., or by any other person relating to the said dismissal. Presented March 6, 1914.—*Mr. Emmerson*.....*Not printed.*

44 (5*a*). Return to an Order of the House of the 2nd February, 1914, for a copy of all documents, letters, correspondence and petitions asking for the dismissal of Mr. Felix Raymond, postmaster at Ste. Scholastique Village, County of Two Mountains, together with everything in connection with such dismissal. Presented March 6, 1914.—*Mr. Ethier.* *Not printed.*

44 (5*b*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the sub-lands agency in Gravelburg, Saskatchewan. Presented March 10, 1914.—*Mr. Knowles*.....*Not printed.*

44 (5*c*). Further Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any department in connection with the said dismissals and investigations or removals from office. Presented March 10, 1914.—*Mr. McKenzie*.....*Not printed.*

44 (5*d*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, telegrams, correspondence and petitions in any way referring to the dismissal of the postmaster at Ainslie Glen, Inverness County, and the appointment of Neil McKinnon to said office. Presented March 12, 1914.—*Mr. Chisholm (Inverness).* *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (5*e*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, letters, &c., since October 1, 1911, relating to the appointment of a postmaster at Upper Ohio, Shelburne County, N.S. Presented March 12, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

44 (5*f*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, letters and telegrams, relating to the dismissal of Jos. H. Lefebvre, postmaster at Howick Station, County of Chateauguay, and the appointment of his successor. Presented March 12, 1914.—*Mr. Robb*.....*Not printed*

44 (5*g*). Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents in any way connected with the dismissal of the postmaster at Alexander, Inverness County, and the appointment of a successor. Presented March 12, 1914.—*Mr. Chisholm (Inverness)*.
Not printed.

44 (5*h*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams and documents of all kinds in possession of the Government or any department thereof, in any way relating to the employment of and dismissal from the Geological Survey of Canada of N. H. McLeod, North East Margaree, Inverness County, N.S. Presented March 12, 1914.—*Mr. Chisholm (Inverness)*.
Not printed.

44 (5*i*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of M. Barry, from the service of the Marine Department at Prescott, Ontario. Presented March 17, 1914.—*Mr. Lemieux*.....*Not printed.*

44 (5*j*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of W. Granton, from the service of the Marine Department at Prescott, Ontario. Presented March 17, 1914.—*Mr. Thomson (Qu'Appelle)*.
Not printed.

44 (5*k*). Return to an Order of the House of the 9th February, 1914, for a copy of all letters, and telegrams in connection with the dismissal of the postmaster at Fletwode, Saskatchewan, and the changing of the location of the said post office. Presented March 17, 1914.—*Mr. Turriff*.....*Not printed.*

44 (5*l*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals or removals from office from 1st February, 1913, of postmasters in the County of Westmorland, New Brunswick; together with the names of the dismissed postmasters, or postmistresses, the reason of their dismissal, and a copy of the charges or complaints against such officials respectively, and of all correspondence with respect to the same; and of all correspondence, recommendations, petitions, protests and other documents, and of all notes of evidence and of the reports of investigations, where such were held, relating thereto, or to the appointment of successors to fill such offices respectively; and also the names of all persons appointed to fill the vacancies caused by such dismissals, and of the persons by whom the same respectively were recommended for appointment. Presented March 17, 1914.—*Mr. Emmerson.*
Not printed.

44 (5*m*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of St. Henri de Lauzon, County of Lévis, who, it is said, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with the aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 17, 1914.—*Mr. Bourassa*.....*Not printed.*

44 (5*n*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, petitions, telegrams, evidence, reports, papers and documents, in the possession of the Post Office Department, or any other department, relating to the dismissal of Geo. Skates, postmaster at Appin, Ontario; and if there was an investigation, the name of the investigator and witnesses, a copy of the evidence and of letters, papers, petitions, recommendations and other documents connected with the appointment of Mr. Skates' successor. Presented March 17, 1914.—*Mr. Ross*.....*Not printed.*

44 (5*o*). Return to an Order of the House of the 9th March, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Geo. J. Ryan and Charles Hamlin from the Canadian customs service at Newport, Vermont, and of the appointment of Charles A. Boright and Frank S. Baker to the said positions. Presented March 20, 1914.—*Mr. Boivin*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (5*p*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations, in any way relating to the dismissal of J. Shaver, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Law*.....*Not printed.*

44 (5*q*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of R. Lunay, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Carroll*.....*Not printed.*

44 (5*r*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Slattery, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Béland*.....*Not printed.*

44 (5*s*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Walsh, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

44 (5*t*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of W. Gerts, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Wilson (Laval)*.....*Not printed.*

44 (5*u*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of D. Boivard, employee of the Marine shipyard at Prescott. Ontario. Presented March 20, 1914.—*Mr. Kyte*.....*Not printed.*

44 (5*v*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of G. Scott, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Nesbitt*.....*Not printed.*

44 (5*w*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Offspring, employee of the Marine shipyard at Prescott Ontario. Presented March 20, 1914.—*Mr. Warnock*.....*Not printed.*

44 (5*x*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Hayes, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Turriff*.....*Not printed.*

44 (5*y*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of P. Belanger, from the service of the Marine Department at Prescott, Ontario. Presented March 20, 1914.—*Mr. Proulx*.....*Not printed.*

44 (5*z*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of L. Place, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Pacaud*.....*Not printed.*

44 (6*a*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of C. Kavanagh, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Carroll*.....*Not printed.*

44 (6*b*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Roche, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Sinclair*.....*Not printed.*

44 (6*c*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. McInnis, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. McCoig*.....*Not printed.*

44 (6*d*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of E. Scott, employee of the Marine shipyard at Prescott, Ontario. Presented March 29, 1914.—*Mr. Demers*.....*Not printed.*

44 (6*e*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of C. Wright, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Clark (Red Deer)*.....*Not printed.*

44 (6*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of L. Lalonde, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Bureau*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (6*g*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of H. Birks, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Charlton*.....*Not printed.*

44 (6*h*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of W. Jarvis, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Gauvreau*.....*Not printed.*

44 (6i). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. McDermott, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. Devlin*.....*Not printed.*

44 (6*j*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of George L. Brown, officer in charge of the Dominion lighthouse, Prescott Depot, Ontario, and the appointment of his successor. Presented March 23, 1914.—*Mr. Proulx*.....*Not printed.*

44 (6*k*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Lane, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. MacNutt*.....*Not printed.*

44 (6*l*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of D. Perrin, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. Lemieux*.....*Not printed.*

44 (6*m*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. A. Mundle, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

44 (6*n*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of St. Lambert, County of Lévis, who, it is stated, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with the aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 23, 1914.—*Mr. Bourassa*.....*Not printed.*

44 (6*o*). Return to an Order of the House of the 2nd February, 1914, for a return showing the changes in postmasterships in Bonaventure County from January 1, 1913, to date, with a list of dismissals, and reasons therefor, and of new appointments, also a copy of all reports, correspondence, petitions and documents generally bearing on this subject; together with a list of post office contracts cancelled in said constituency, with reasons therefor, if any, and of new contracts awarded, with the old rate and the new, and whether tenders were called for, in each case, and whether contracts were awarded to lowest tenderer or not. Presented March 23, 1914.—*Mr. Marcil (Bonaventure)*. *Not printed.*

44 (6*p*). Return to an Order of the House of the 2nd February, 1914, for a return of all reports, memorials, correspondence and documents generally, bearing on the dismissal of customs officials in Bonaventure county from January 1, 1913, to date, together with a statement of salaries paid to old and new officials, and a copy of recommendations on which new officials were appointed, if any. Presented March 25, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44 (6*q*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from office since October 1, 1911, not already brought down, of postmasters in the County of Albert, New Brunswick, together with the names of the dismissed postmasters, the reason of their dismissal, and a copy of the charges or complaints against such officials respectively, also a copy of all correspondence, recommendations, petitions, protests and other documents, and of all notes of evidence and of the reports of investigations, where such were held with respect to the same or relating thereto, or to the appointment of successors to fill such offices respectively. And also the names of all persons appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same were respectively recommended for appointment. Presented March 25, 1914.—*Mr. Emmerson*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (6*r*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the constituency of Queen's, Shelburne, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already been passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same may have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented March 26, 1914.—*Mr. Law*.....*Not printed.*

44 (6*s*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing all the public officers dismissed by the present Government in the electoral district of Kamouraska, with the names and duties of such persons respectively, the reason for their dismissal, the nature of the complaints brought against them, also of all correspondence relating thereto and reports of inquiries in cases where such have been held. Presented March 26, 1914.—*Mr. Lapointe* (*Kamouraska*).....*Not printed.*

44 (6*t*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of Notre Dame de Charny, County of Lévis, who, it is stated, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with the aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 31, 1914.—*Mr. Bourassa* .....*Not printed.*

44 (6*u*). Return to an Order of the House of the 16th March, 1914, for a copy of all telegrams, letters and correspondence in connection with the dismissal of Charles S. Melanson, postmaster of Corberrie, Digby County, N.S. Presented April 1, 1914.—*Mr. Law* . *Not printed.*

44 (6*v*). Return to an Order of the House of the 11th February,, 1914, for a return showing reasons for the dismissal of Gordon McDonald, homestead inspector in the Grouard Land Agency, the date of his appointment and of dismissal, and salary at time of dismissal; also the names of inspector appointed in his place, with date of appointment and salary. Presented April 2, 1914.—*Mr. Oliver*.....*Not printed.*

44 (6*w*). Return to an Address to His Royal Highness the Governor General of the 17th February, 1913, for a copy of all letters, papers and documents relating to the appointment of W. F. Slack as clerk of works in the Department of Public Works at Ottawa; a copy of the charges against the said W. F. Slack, which were investigated by Honourable F. D. Monk, and of all the letters suspending and re-instating the said W. F. Slack; of the employees memorial, dated May 11, 1912, and addressed to Honourable F. D. Monk; praying for the retention in office of the said W. F. Slack; a copy of the charges investigated by Commissioner R. V. Sinclair, of the evidence taken and the reports made by the said commissioner; and also of all correspondence, requests, recommendations and orders in council relating to the dismissal of the said W. F. Slack. Presented April 2, 1914.—*Mr. Murphy* .....*Not printed.*

44 (6*x*). Return to an Order of the House of the 28th April, 1913, for a copy of all correspondence, memoranda, reports, telegrams, and of all documents whatsoever, in connection with and having relation to the dismissal of William Brunelle, lighthouse keeper at Pointe à Citrouille, County of Champlain, Province of Quebec. Presented April 2, 1914. —*Mr. Bureau* .....*Not printed.*

44 (6*y*). Return to an Order of the House of the 23rd March, 1914, for a copy of all documents, correspondence, petitions, recommendations, &c., in connection with the dismissal of Arthur Levesque, light keeper at Grosse Isle, Kamouraska, and with the appointment of his successor? Presented April 7, 1914.—*Mr. Lapointe* (*Kamouraska*)..*Not printed.*

44 (6*z*). Return to an Order of the House of the 28th April, 1913, for a copy of all correspondence, memoranda, reports, telegrams and all other documents whatsoever having reference to the dismissal of L. Philippe Carignan, lighthouse keeper at Champlain, County of Champlain. Presented April 2, 1914.—*Mr. Bureau*.....*Not printed.*

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44 (7*a*). Return to an Order oft he House of the 23rd March, 1914, for a copy of all documents, petitions, correspondence, recommendations, investigations, &c., in connection with the dismissal of Dominique Levesque, lightkeeper at Rivière Ouelle wharf, County of Kamouraska, and with the appointment of his successor. Presented April 7, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

44 (7*b*). Return to an Order of the House of the 2nd February, 1914 ,for a return showing in detail the number of dismissals from public offices by the present Government in the electoral district of Shefford from the 1st of October, 1911, not already brought down to the present date; together with the names of the dismissed officers, the reasons for their dismissal, the complaints against such officials, names of the complainants in each case, and the names of their successors in office. Presented April 16, 1914.—*Mr. Boivin. Not printed.*

44 (7*c*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing all public officers removed by the present Government in the District of Portneuf, together with the names and duties of each person, the reasons for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held. Presented April 16, 1914.—*Mr. Delisle*.....*Not printed.*

44 (7*d*). Return to an Order of the House of the 4th February, 1914, for a copy of all correspondence relative to the dismissal of Alex. W. Finlayson, keeper of light on St. Esprit Island, Richmond County, N.S., and to his resignation and the appointment of a successor. Presented April 17, 1914.—*Mr. Kyte*.....*Not printed.*

44 (7*e*). Return to an Order of the House of the 4th March, 1914, for a copy of all papers, evidence, &c., in connection with the investigation held by the Department of Marine and Fisheries against the light keeper of Cape Cove, County of Gaspé, in 1911. Presented April 17, 1914.—*Mr. Lemieux*.....*Not printed.*

44 (7*f*). Return to an Order of the House of the 16th February, 1914, for a copy of all telegrams, correspondence and documents of all kinds in any way relating to the dismissal or suspension from duty of Dan Cormier, an officer in the life-saving station at Eastern Harbour, Inverness County, Nova Scotia. Presented April 21, 1914.—*Mr. Chisholm (Inverness)* ..... *Not printed.*

44 (7*g*). Return to Order of the House of the 16th February, 1914, for a copy of all documents bearing on the appointment and dismissal of Ben. V. Willett, as light keeper at Point Duthie, Quebec, and of the appointment of James Doddridge as his successor, as well as of those bearing on the contemplated removal of that light to Maria wharf. Presented April 21, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44 (7*h*). Return to an Order of the House of the 12th February, 1914, for a return showing the names of the postmasters who have been dismissed in the County of Lévis since the month of September, 1911; the number of the dismissed postmasters, since the month of September, 1911, who have been appointed in the place of postmasters dismissed under the late administration; and the names of the postmasters who were dismissed under the late administration. Presented April 22, 1914.—*Mr. Bourassa*..*Not printed.*

44 (7*i*). Return to an Order of the House of the 2nd March, 1914, for a copy of all correspondence, papers, documents, evidence, reports, telegrams, &c., relating to the dismissal of John A. L. McLellan, late Light keeper at Fish Island, Prince Edward Island. Presented April 28, 1914.—*Mr. Hughes (Kings, P.E.I.)*..... *Not printed.*

44 (7*j*). Return to an Order of the House of the 6th April, 1914, for a copy of all documents bearing on the dismissal of Thomas Le Blanc, as postmaster of Allard, Bonaventure County, and the appointment of his successor. Presented April 30, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

44 (7*k*). Return to an Order of the House of the 21st April, 1913, for a copy of all letters, telegrams, petitions, complaints, evidence, reports and other documents relating to the dismissal of William E. Ehler, Lightkeeper, Queensport, N.S., also a detailed statement of the expenses connected with the investigation, distinguishing the allowance paid the commissioner from travelling expenses and witness fees; and of all papers connected with the appointment of Mr. Ehler's successor. Presented May 5, 1914.—*Mr. Sinclair. Not printed.*

44 (7*l*). Return to an Order of the House of the 2nd March, 1914, for a copy of all letters, petitions, telegrams, evidence, reports, papers and documents in the possession of the Post Office Department, or any other Department, relating to the dismissal of Samuel Dickson, postmaster at Seaforth, Ontario, and if there was an investigation, the names of the investigator and witnesses, with a copy of the evidence and of all letters, papers, petitions, recommendations, or other documents connected with the appointment of Mr. Dickson's successor. Presented May 8, 1914.—*Mr. Ross*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (7*m*). Return to an Order of the House of the 6th April, 1914, for a copy of all petitions, letters, complaints and other documents relating to the dismissal of Charles McPherson, postmaster at North Riverside, County of Guysborough, N.S., and of all recommendations and correspondence relating to the appointment of his successor; also a copy of all evidence and of the report of the investigation, if any, and a statement of the expenses of said investigation. Presented May 8, 1914.—*Mr. Sinclair*.....*Not printed.*

44 (7*n*). Return to an Order of the House of the 9th March, 1914, for a copy of all letters, telegrams, petitions, notes of evidence, charges, if any, and other papers and documents relating to the dismissal of Christian L. Ehler, postmaster at Queensport, N.S., and of all correspondence, petitions and other papers and documents relating to the appointment of his successor, with a detailed statement of the expenses of the said investigation, if any. Presented May 11, 1914.—*Mr. Sinclair*.....*Not printed.*

44 (7*o*). Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. Whether Christian L. Ehler, postmaster at Queensport, N.S., has been dismissed; and if so, when?
2. Whether the charges against this postmaster were in writing, and by whom the said charges were signed?
3. What the charges were?
4. Who conducted the investigation, if any?
5. Whether the investigation took place after the dismissal or before?
6. Whether the commissioner recommended the dismissal of this postmaster?
7. The names of the witnesses examined?
8. The expense of the investigation in detail?
9. If the Postmaster General is of the opinion that the evidence taken at the investigation justified this dismissal? Presented May 11, 1914.—*Mr. Sinclair.*

Not printed.

44 (7*p*). Return to an Order of the House of the 19th February, 1913, for a copy of all letters, petitions, telegrams, complaints, findings, reports and other papers in the possession of the Post Office Department, or any Department of the Government, relating to the dismissal or discharge of James White, postmaster at Sidney, British Columbia, and if there was an investigation, the names of the witnesses examined and a detailed statement of the expenses of such investigation; also of all letters, telegrams, recommendations and other papers connected with the appointment of his successor. Presented May 11, 1914.—*Mr. Sinclair*.....*Not printed.*

44 (7*q*). Return to an Order of the House of the 9th March, 1914, for a copy of the petition, recommendations and other correspondence relating to the change in the location of the post office at Mount St. Patrick in South Renfrew, and the dismissal of the postmaster. Presented May 11, 1914.—*Mr. Graham*.....*Not printed.*

44 (7*r*). Return to an Order of the House of the 16th February, 1914, for a copy of all documents bearing on the dismissal of the officer in charge of the Port Daniel West, Quebec, lobster hatchery, Edward Dea, and on the appointment of his successor. Presented May 15, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

44 (7*s*). Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence in connection with the dismissal of A. C. Cameron of Fairlight, Saskatchewan, from his position as mail contractor. Presented May 16, 1914.—*Mr. Turriff.*

Not printed.

44 (7*t*). Return to an Order of the House of the 16th March, 1914, for a copy of all charges, correspondence, letters, petitions, telegrams and other documents relating to the dismissal of Mr. Geo. F. Payne, postmaster at Granby, Shefford County, Quebec, and of the appointment of his successor, Mr. J. L. Dozois, N.P., and also of the transfer of the said office from the one to the other, together with a copy of the evidence taken at all investigations held in connection with the said dismissal, appointment and transfer, and of the reports of said investigations. Presented May 16, 1914.—*Mr. Boivin.*

Not printed.

44 (7*u*). Return to an Order of the House of the 30th March, 1914, for a return showing the names of the postmasters who have been dismissed from the office since 1900, in the County of Portneuf, the number of investigations and the names of those whose cases were investigated. Presented May 16, 1914.—*Mr. Delisle*.....*Not printed.*

44 (7*v*). Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, telegrams, correspondence, complaints and protests on file, reefrring to the dismissal of the late postmaster at Havre Boucher, N.S., and to the appointment of a successor. Presented May 16, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

44 (7*w*). Return to an Order of the House of the 6th April, 1914, for a copy of all documents, investigations, reports and letters, concerning the dismissal of William Campbell, light keeper on the wharf at New Richmond, Quebec, and the appointment of James Robertson as his successor; together with a copy of recommendations and the letters respecting the appointment, if any. Presented May 29, 1914.—*Mr. Marcil (Bonaventure).*

Not printed.

CONTENTS OF VOLUME 28—*Continued.*

44 (7*x*). Supplementary Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the first day of February, 1913, to date, in the County of Westmorland, New Brunswick, in connection with any of the Departments of the Public Service, except the Post Office Department, together with the names of the dismissed officials or employees, the reasons for their respective dismissal, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal and of all minutes of evidence of investigations where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, or of the Government Railway Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railways; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented June 2, 1914.—*Mr. Emmerson*.....*Not printed.*

44 (7*y*). Return to an Order of the House of the 14th April, 1913, for a return showing the detail and number of dismissals from public offices in the Department of Marine and Fisheries from December 5, 1912, to this date, in the County of Bonaventure, the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigations, where such were held; as well as a list of the new appointments made by the department, with names, residence, salaries and duties, and a copy of all recommendations of such appointments. Presented June 2, 1914.—*Mr. Marcil (Bonaventure)*. *Not printed.*

44 (7*z*). Return to an Order of the House of the 4th May, 1914, for a copy of all complaints and other documents bearing upon the dismissal of J. R. Denison as postmaster of Richmond, Quebec, and the appointment of his successor. Presented June 2, 1914.—*Mr. Tobin* ..... *Not printed.*

44 (8*a*). Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence exchanged by and with the Department of Inland Revenue and the late J. G. Mousseau and A. M. Coldwell, New Carlisle, Quebec, and David Champoux, Campbellton, N.B., or Restigouche, Quebec, in connection with the dismissal of Arthur B. Caldwell, Assistant Inspector of Weights and Measures, District of Quebec. Presented June 8, 1914.—*Mr. Marcil*.....*Not printed.*

44 (8*b*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Annapolis, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all parties appointed to fill vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented June 8, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

44 (8*c*). Partial Return to an Order of the House of the 18th February, 1914, for a copy of all charges, complaints, memorials, correspondence and telegrams, not already produced, relating to officials in any department of the Government since October 10, 1911, the number of officials dismissed, reports of investigations held in respect of such charges, items of expenditure and cost of each investigation, the names of persons appointed to office in the place of dismissed officials, and of all recommendations received in behalf of persons so appointed in the Province of Prince Edward Island. Presented June 12, 1914.—*Mr. Hughes (Kings, P.E.I.)*.....*Not printed.*

44 (8*d*). Return to an Order of the House of the 1st June, 1914, for a copy of all charges and complaints, letters, telegrams and correspondence respecting the dismissal of Captain Jeremiah Decoste, mate and craneman, employed on dredge *No. 6* under Captain Dan Gill's during the season of 1912, and of all representations made and correspondence had with the Department of Public Works, or any officer thereof regarding his re-instatement. Presented June 12, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

45. Return to an Order of the House of the 12th May, 1913, for a copy of all communications made by the Canadian Forestry Association to the Government between March 31, 1912, and March 31, 1913, with the replies made thereto. Presented January 19, 1914.—*Mr. Oliver* ..... *Not printed.*

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46. Return to an Order of the House of the 16th January, 1913, for a return showing the number of bushels of grain and sacks or barrels of flour which were shipped from Fort William and Port Arthur by vessel during 1912, and the different kinds of grain respectively; to what points were the same shipped in Canada and the United States giving quantities and kinds respectively, and at what points in Canada was grain or flour received by vessel from the United States, giving the quantities and kinds respectively. Presented January 19, 1914.—*Mr. Bennett (Simcoe)*.....*Not printed.*

47. Return to an Order of the House of the 7th May, 1913, for a copy of the report concerning Indian Titles which was presented to the Superintendent General of Indian Affairs under date of August 20, 1909. Presented January 19, 1914.—*Mr. Thompson (Yukon)*. *Not printed.*

48. Copy of Order in Council No. P. C. 3002, dated 29th November, 1913, in respect to Pensions or Gratuities to officers of the Royal Canadian Navy, in accordance with section 47 of the Naval Service Act, 1910. Presented by Hon. Mr. Hazen, January 19, 1913. *Not printed.*

49. Return to an Order of the House of the 26th May, 1913, for a copy of all telegrams, letters, &c., from the Department of Customs sent to or received from John C. Bourinot, Port Hawkesbury, customs officer, during the years 1895-6-7. Presented January 19, 1914. —*Mr. Chisholm (Inverness)*.....*Not printed.*

49*a*. Return to an Order of the House of the 26th May, 1913, for a return showing a complete list of the seizures made by John C. Bourinot, during his incumbency as acting preventive officer from 1884 to 1886; also during his term of office as Collector of Customs for the Port of Hawkesbury from 1886 to 1898, also during his term of office of special officer of customs from 1898 to 1912; with the date of each seizure, number of each seizure, name of party from whom seizure was made, in case of vessels, the names of the vessels; also the names of the owners of such vessels, the amount of each seizure, name of port where seizure was made, and the amount of the seizures made by him from 1884 to May 1, 1912, for the whole Province of Nova Scotia. Presented January 19, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

50. Statement of Governor General's Warrants issued since the last session of parliament on account of 1913-14. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

51. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending March 31, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

52. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ending December 31, 1913, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy is filled by promotion or by appointment, and salary of any new appointee. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

53. Statement of Receipts and Expenditures of the Ottawa Improvement Commission to March 31, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

54. Statement of expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1913, to the 14th January, 1914, in accordance with the Appropriation Act of 1912. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

55. Statement of the affairs of the Royal Society of Canada, for the year ended April 30, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

56. Statement of Temporary Loans since March 31, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

57. Statement of Treasury Bills discounted since March 31, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

58. Certified List of Shareholders of the Montreal City and District Savings Bank, and La Caisse D'Economie de Notre Dame de Quebec, as on the 31st December, 1913. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

59. Copies of General Orders promulgated to the militia for the period between November 18, 1912, and November 25, 1913. Presented by Hon. Mr. Hughes, January 19, 1914. *Not printed.*

60. Return to an Order of the House of the 30th April, 1913, for a copy of the report made by the Inquiring Commissioner, Mr. J. H. Bergeron, in the inquiry lately held by him, at Quebec, *re* Doctor J. D. Page, of Quebec, and of the reports made by the advocate of the complainant and defendant in the same cause at the request of the Inquiring Commissioner. Presented January 20, 1914.—*Mr. Boulay*.....*Not printed.*

61. Return to an Order of the House of the 26th March, 1913, for a copy of all petitions, reports, recommendations, correspondence, letters, telegrams and other communications concerning the east half of section 36, in township 6, range 8, west of the fourth meridian. Presented January 20, 1914.—*Mr. Buchanan*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

61*a*. Return to an Order of the House of the 24th February, 1913, for a copy of all memoranda, letters, papers, or other documents in the possession of the Department of the Interior relating to the N.W. ¼ of 8-49-23-4, and the S.W. ¼ of 7-49-28-4. Presented January 20, 1914.—*Mr. Oliver*.....*Not printed.*

62. Return to an Order of the House of the 22nd January, 1913, for a copy of all correspondence, &c., exchanged between the Minister of Labour and the Canadian Pacific Railway strikers on their application for a Board of Conciliation and Investigation. Presented January 20, 1914.—*Mr. Lemieux*.....*Not printed.*

63. By-laws of the Moravian Indians of the Thames and Regulations of the Abenakis Indians of St. Francis, approved by His Excellency the Administrator in Council on the 27th March, 1913, and the 21st April, 1913, respectively. Presented by Hon. Mr. Coderre, January 20, 1914.....*Not printed.*

64. General Rules and Orders of the Exchequer Court of Canada made, respectively, on the 24th September, 1913, and the 13th December, 1913. Presented by Hon. Mr. Coderre, January 20, 1914.....*Not printed.*

65. Regulations under "The Destructive Insect and Pest Act."—(*Senate*).....*Not printed.*

66. Remission of Duties and refund under Section 92, Audit Act.—(*Senate*).....*Not printed.*

67. Return to an Order of the House of the 19th May, 1913, for a return showing a comparative and detailed statement of costs of production, maintenance, operation, and management, and receipts of the Dog Fish Reduction Works at Clark's Harbour, N.S., for the years 1910, 1911 and 1912. Presented January 21, 1914.—*Mr. Maclean (Halifax)*. *Not printed.*

68. Return to an Order of the House of the 21st May, 1913, for a copy of all papers, letters, documents, contracts, settlements, records of settlements, and all other papers and documents in any way relating to the claim of the Rainy River Navigation Company against the Government, arising out of a subsidy agreement for the operation of certain boats between Fort Frances and Kenora for the season of 1911, or in connection with the settlement of the said claim, or of the said subsidy. Presented January 21, 1914.—*Mr. Maclean (York)*.....*Not printed.*

69. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence, letters, telegrams, reports, recommendations, certificates, and of all other documents relating to the appointment of Mr. J. S. Jackson as superintendent of the Government shipyards at St. Joseph de Sorel. Presented January 22, 1914.—*Mr. Cardin*. *Not printed.*

70. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, reports, bonds of indemnity, and all other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the letting of a contract for carrying the mails between Sherbrooke, County of Guysborough, N.S., and Moser's River, County of Halifax, N.S., during the years 1911 and 1912. Presented January 22, 1914.—*Mr. Sinclair*.....*Not printed.*

70*a*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, and other documents relating to the mail contract between Scotsburn Station and West Branch, River John, County of Pictou, in the year 1912. Presented January 22, 1914. —*Mr. Macdonald*.....*Not printed.*

70*b*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, reports and other documents relative to the mail contract between Scotsburn and West Branch, River John, Pictou County, since October 1, 1911. Presented January 22, 1914. —*Mr. Macdonald*.....*Not printed.*

70*c*. Return to an Order of the House of the 10th December, 1912, for a return showing (*a*) each mail contract awarded since the 15th of October, 1911; (*b*) the name of the tenderer in each case; (*c*) the figures of each tender; and (*d*) the name of each party to whom such contract has been awarded. Presented January 22, 1914.—*Mr. Lemieux*.....*Not printed.*

70*d*. Return to an Order of the House of the 15th January, 1913, for a return showing a list of the mail carriers whose contracts have been cancelled or renewed by the present Government in the County of Two Mountains, the names of such persons, the reasons for cancelling or renewing the said contracts, the former price and the present price of the said contracts; also a copy of all correspondence relating to the said mail carriers. Presented January 22, 1914.—*Mr. Ethier*.....*Not printed.*

70*e*. Return to an Order of the House of the 9th December, 1912, for a return showing all the mail contracts made between the Post Office Department of Canada and any party or parties, and cancelled before the maturity thereof from October 15, 1911, to the 15th of November, 1912, designating such cancelled mail contracts by giving the name of the contractor, the amount of the contract, the period of the unexpired service, the name of the district or districts, and the county and province wherein the service was performed, together with the reasons for such cancellation. Presented February 12, 1914. —*Mr. Maclean (Halifax)*.....*Not printed.*

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70*f*. Return to an Order of the House of the 29th January, 1913, for a copy of all papers, and documents of every nature and kind relating to a certain mail contract between Back Shore and Pictou, County of Pictou, since the death of the late contractor D. G. McKay, in 1912. Presented February 20, 1914.—*Mr. Macdonald*.....*Not printed.*

70*g*. Return to an Order of the House of the 14th April, 1913, for a copy of the contract between the Post Office Department and Napoleon Le Blanc, for the carrying of the mails between Carleton Centre and Carleton, Quebec, Railway Station, and of all correspondence, petitions, and other letters bearing on the cancelling of that contract and the awarding of a new one, with a copy of said new contract. Presented February 23, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

70*h*. Return to an Order of the House of the 2nd April, 1913, for a copy of all papers relating to the mail contract from Noël to Walton, County of Hants, during the present year. Presented February 26, 1914.—*Mr. Macdonald*.....*Not printed.*

70*i*. Return to an Order of the House of the 12th May, 1913, for a copy of all tenders for, and correspondence relating to, the awarding of the contract for the carrying of His Majesty's mail between Warkworth and Colborne, County of Northumberland. Presented February 26, 1914.—*Mr. Graham*.....*Not printed.*

70*j*. Return to an Order of the House of the 12th May, 1913, for a copy of all correspondence, papers, &c., in connection with the carrying of the mail between St. François Xavier de Brompton and Windsor Mills, Quebec. Presented February 26, 1914.—*Mr. Tobin.* *Not printed.*

70*k*. Return to an Order of the House of the 17th February, 1913, for a return showing the number of mail contracts cancelled in the Province of Nova Scotia since October 10, 1911, the names of the contractors, the prices paid to them, the reason for the cancellation in each case, and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented March 2, 1914.—*Mr. Sinclair*.....*Not printed.*

70*l*. Return to an Order of the House of the 4th December, 1912, for a return showing the number of mail contracts cancelled in the County of Pictou since the 1st of October, 1911; the names of the contractors, the prices paid to them, the reason for the cancellation in each case; and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented March 2, 1914.—*Mr. Macdonald*.....*Not printed.*

70*m*. Return to an Order of the House of the 31st March, 1913, for a copy of all tenders received and of all letters, telegrams, papers and other documents relating to the mail contract between Tatamagouche and Brulé Shore, Colchester County, during the present year. Presented March 2, 1914.—*Mr. Macdonald*.....*Not printed.*

70*n*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, telegrams and correspondence referring to the tenders received and the contracts awarded, if any, for the carrying of the mails between Antigonish and Livingstone Cove. Presented March 5, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

70*o*. Return to an Order of the House of the 19th May, 1913, for a copy of all telegrams and correspondence on file relating to the mail service between Antigonish and Livingstone Cove, and of the tenders received, and the contract entered into for this service. Presented March 12, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

70*p*. Return to an Address to His Excellency the Administrator of the 28th April, 1913, for a copy of all documents, tenders, contracts, correspondence, orders in council, &c., in reference to the mail service between Bridgetown, Port Lorne and Hampton, Parker's Cove, Annapolis County, N.S., for which service tenders were recently solicited. Presented March 12, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

70*q*. Return to an Order of the House of the 9th February, 1914, for a copy of the advertisement for tenders, and of the tenders received, and of the contract awarded last year, for the carrying of the mails between Antigonish and Livingstone Cove, and of all letters, telegrams, correspondence and documents in any way relating thereto. Presented March 12, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

70*r*. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all persons tendering, the amount of tender, and to whom awarded in 1913, for the carriage of mails covering the following mail routes in Shelburne County, Nova Scotia; Shelburne to Jordan Bay and Jordan Ferry and return; Clyde River to Upper Clyde and return; Lower Woods Harbour to Charlesville and return; Port Le Herbert to Sable River. Presented March 20, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

70*s*. Return to an Order of the House of the 9th February, 1914, for a copy of all tenders, contracts, documents, papers and correspondence in connection with tenders and contracts for the carriage of mails between Bridgetown and Port Lorne, Hampton and Parker's Cove, in 1912. Presented March 20, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

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70*t*. Return to an Order of the House of the 9th February, 1914, for a copy of the contract entered into last year for the carrying of the mails between North Lochaber and Collegeville, and of all letters, telegrams, and correspondence referring to said service and the awarding of said contract. Presented March 23, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

70*u*. Return to an Order of the House of the 9th February, 1914, for a copy of the advertisement for tenders, and of the tenders received last year for the carrying of the mails between Merigomish and Malignant Cove, and of all letters, telegrams and correspondence and documents in any way relating thereto. Presented March 25, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

70*v*. Return to an Order of the House of the 19th March, 1914, for a return showing how many mail contracts have been cancelled in the County of Inverness from September, 1911, up to date.

2. The route of each contract, the name of the contractor, and the amount of each contract.

3. The reasons for cancelling the several contracts. Presented April 22, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

70*w*. Return to an Order of the House of the 30th March, 1914, for a copy of all letters, telegrams, correspondence, guarantee bonds, and other documents and security relating to the renewal of the contract with George A. Stewart for carrying mail between North Lochaber and West Lochaber, in or about the month of May, 1913, of the subsequent cancellation of said renewal contract, and of the contract made with Hugh D. Cameron for said service. Presented April 29, 1914.—*Mr. Chisholm (Antigonish)*..*Not printed.*

70*x*. Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence, telegrams and papers generally concerning the increased railway mail subsidy recently agreed upon by the Postmaster General and the various railway companies. Presented April 30, 1914.—*Mr. Lemieux*.....*Not printed.*

70*y*. Return to an Order of the House of the 4th May, 1914, for a return showing the names of the 82 tenderers for the carrying of the mails between Baie St. Paul and Murray Bay, County of Charlevoix, and the amount of the tender in each case. Presented May 8, 1914.—*Mr. Lemieux*.....*Not printed.*

70*z*. Retun to an Order of the House of the 20th April, 1914, for a copy of all letters, papers, contracts, memoranda and other documents relative to the mail contract between Pictou post office and railway station, between the Post Office Department and Peter Foley. Presented May 8, 1914.—*Mr. Macdonald*.....*Not printed.*

70 (2*a*). Return to an Order of the House of the 23rd March, 1914, for a copy of all documents, letters, recommendations, &c., in connection with a contract awarded to Christophe Lavesque, of St. Eleuthère, for the conveyance of the mail between St. Eleuthère and Sully. Presented May 11, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

70 (2*b*). Return to an Order of the House of the 11th May, 1914, for a return showing:—

1. Whether Mr. David Armstrong, mail carrier of the City of Sherbrooke, has been dismissed. If so, for what cause?

2. Whether an investigation was held at which he was given an opportunity of meeting his accusers and being heard in his own defence?

3. How many years Mr. Armstrong has been in the service?

4. What remuneration he was receiving for his services?

5. Whether a successor has been appointed? If so, what his name is, who recommended him and what remuneration he received. Presented May 28, 1914.—*Mr. McCrea*.....*Not printed.*

70 (2*c*). Return to an Order of the House of the 18th May, 1914, for a copy of all correspondence, papers, tenders and other documents in any way referring to the transfer from J. A. Campbell to Alexander Macdonnell of the contract for carrying the mail from Port Hood to South West Port Hood. Presented June 2, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

70 (2*d*). Return to an Order of the House of the 17th February, 1913, for a return in duplicate showing the number of mail contracts cancelled in the Counties of Westmorland, Albert, Kings and Kent, Province of New Brunswick, since October 9, 1911, the names of the contractors, the prices paid to them, the reason for the cancellation in each case, and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors, and the prices paid to them in each case; and in cases where tenders were asked and received preliminary to such new contracts, a statement in duplicate showing names of the tenderers, with the offers made by each, the name of the successful tenderer, and the amount or price, for which contract was executed in each case; together with a copy in duplicate of all letters, correspondence and other communications relating to each such cancellation and the giving of any new contract. Presented June 2, 1914.—*Mr. Emmerson*.....*Not printed.*

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71. Return to an Order of the House of the 2nd June, 1913, for a copy of all correspondence and telegrams relating to complaints, political or otherwise, made against Mrs. Marcelline Roy, postmistress at Elm Tree, Gloucester County, N.B., which led the department to issue an order for an investigation, and the said postmistress to tender her resignation, and to the appointment of her successor. Presented January 22, 1914.—*Mr. Turgeon* .....*Not printed.*

72. Return to an Order of the House, of the 26th March, 1913, for a copy of all petitions recommendations, correspondence, letters, telegrams and other communications concerning the change in location of the post office known as Masinasin, Province of Alberta. Presented January 22, 1914.—*Mr. Buchanan*.....*Not printed.*

73. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, telegrams and petitions concerning the closing of the Moulin Basinet post office, Parish of St. Jean de Matha, County of Joliette. Presented January 22, 1914.—*Mr. Lemieux.* *Not printed.*

74. Return to an Order of the House of the 7th April, 1913, for the production of one sample of a patented lock and key sold by the Ontario Equipment Company of Ottawa to the Post Office Department. Presented January 22, 1914.—*Mr. Verville*.....*Not printed.*

74*a*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence between the Post Office Department and Alleyn Taschereau, advocate of Quebec, concerning the purchase of new locks for the mail bags. Presented January 22, 1914.—*Mr. Carvell* .....*Not printed.*

74*b*. Return to an Order of the House of the 4th March, 1914, for a copy of the application, correspondence and papers generally concerning mail lock patent No. 151043. Presented May 11, 1914.—*Mr. Lemieux*.....*Not printed.*

75. Return to an Order of the House of the 10th February, 1913, for a copy of all letters, telegrams and other correspondence exchanged between the Post Office Department and Messrs. A. de Macdonald, Elzear Monpetit and all others, relating to the change of the postmasters at Ile Perrot North and Ile Perrot South, Vaudreuil Station, Roquebrune, St. Lazare Village, Mount Oscar and Pte. Fortune, and of the report of the inquiring commissioner in each of the cases in which an inquiry was held; of the correspondence exchanged between the parties above named relative to the new post office building at Rigaud and of correspondence exchanged between the parties above mentioned, relating to the post offices lately named Choisy and Demartigny. Presented January 22, 1914.—*Mr. Boyer* .....*Not printed.*

75*a*. Return to an Order of the House of the 9th April, 1913, for a copy of all documents bearing on changes asked for in the postmastership of Port Daniel Centre, Avignon, New Richmond and Black Cape, Bonaventure County; and of all documents bearing on the closing of Black Cape East post office, Bonaventure County. Presented January 22, 1914.—*Mr. Marcil* .....*Not printed.*

75*b*. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams, papers, and other documents connected with the removal of the post office from the store of Alexander Robertson at Red Point, P.E.I., to the store of J. E. Robertson of the same place. Presented February 20, 1914.—*Mr. Hughes (P.E.I.)*..*Not printed.*

75*c*. Return to an Order of the House of the 16th February, 1914, for a copy of any complaints made against John A. Campbell, postmaster of New Richmond, Quebec, and of all correspondence bearing on any change called for in that office. Presented March 17, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

76. Return to an Order of the House of the 7th May, 1913, for a copy of all correspondence and telegrams exchanged between the Post Office Department, the Government or any member thereof, the post office inspector at St. John, N.B., or any official of the Post Office Department at St. John, N.B., on the one hand, and the postmaster at Kouchibouguac, Kent County, N.B., Mr. Cliff Atkinson, or any other person, corporation or firms, relating to the sale or non-purchase of postage stamps, or the mailing of letters, delivery of mail, &c., at the said post office; together with a copy of all correspondence, reports and other papers and documents in any wise relating thereto, on file in the Post Office Department at Ottawa, or in the office of the post office inspector at St. John, N.B.; also a copy of all regulations or orders of the Post Office Department relating to the sale of postage stamps, or the mailing of letters, or the delivery of mails, or generally as to the use of post office by residents and non-residents. Presented January 22, 1914.—*Mr. Emmerson* .....*Not printed.*

77. Return to an Order of the House of the 2nd June, 1913, for a return showing the names, dates of appointment and salary respectively, of the employees of the Moosejaw post office. Presented January 22, 1914.—*Mr. Knowles*.....*Not printed.*

77*a*. Return to an Order of the House of the 24th February, 1913, for a copy of all letters, telegrams, recommendations, petitions and documents, relating to the appointment of Mr. Pierre Cournoyer as postmaster at St. Pierre de Sorel, County of Richelieu. Presented January 22, 1914.—*Mr. Cardin*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

77*b*. Return to an Order of the House of the 14th April, 1913, for a return showing what public officers have been appointed in the City of Qubeec, in the Departments of Inland Revenue, Post Office, Railways and the Transcontinental, Customs, Immigration, Marine and Fisheries, Public Works and Militia, since the 1st October, 1911, up to this date; together with the names and duties of these persons, the dates of their appointment, the salary paid in each case and the increases granted since; also the date of these increases, and which ones of these officers have passed the Civil Service examinations required for the positions which they occupy, and on what dates they passed such examinations; and also a copy of all correspondence, requests, recommendations and reports relating to the appointment of these officers. Presented January 22, 1914.—*Mr. Lachance.*
Not printed.

77*c*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways and Canals, or of the Intercolonial Railway, or of the Government Railways Managing Board, relating or in any manner appertaining to the appointment and employment of train or ticket agents on the Intercolonial Railway and Prince Edward Island Railway, together with a copy of all statements showing the amounts received by said agent, in cash and tickets, on the trains of the respective divisions of said railways; and also showing the amounts received during corresponding periods for the past two years, in cash and tickets, on the same trains on the said respective divisions by the conductors of said trains, when no train or ticket agents were employed thereon, either before or since the employment of such agents on the respective trains and also a copy of all statements showing the results of the experiment in employing such ticket agents. Presented January 22, 1914.—*Mr. Emmerson* .....*Not printed.*

77*d*. Partial Return to an Order of the House of the 9th December, 1912, for a return showing when Mr. J. G. H. Bergeron was appointed commissioner to hold investigations, the number of investigations held since his appointment, salary received in each case and the amount paid for travelling expenses in each case. Presented January 22, 1914.—*Mr. Lemieux* .....*Not printed.*

77*e*. Return to an Address to His Royal Highness the Governor General of the 29th January, 1913, for a copy of all orders in council, memoranda or instructions issued to or written to H. P. Duchemin in connection with his appointment as a commissioner to conduct investigations regarding political partisanship in the Province of Nova Scotia; also a copy of all letters received by any department of the Government from the said H. P. Duchemin relating to such investigations since the date of his appointment as such commissioner, and all instructions of whatever nature at any time issued to him relating to such investigations. Presented January 22, 1914.—*Mr. Lemieux*....*Not printed.*

77*f*. Appointment of F. Roy, as postmaster of St. Phillipe de Nery, &c., Province of Quebec. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

77*g*. Supplementary Return to an Order of the House of the 9th December, 1912, for a return showing when Mr. J. G. H. Bergeron was appointed commissioner to hold investigations, the number of investigations held since his appointment, salary received in each case and the amount paid for travelling expenses in each case. Presented February 23, 1914.—*Mr. Lemieux* .....*Not printed.*

77*h*. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams, and other documents, relating to the removal of T. J. Oliver, as Dominion Lands Agent at Humboldt, Saskatchewan, his appointment to his present position, and the appointment of his successor at Humboldt. Presented March 6, 1914.—*Mr. Neely* .....*Not printed.*

77*i*. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams, letters of instructions, or other documents relating to the removal of W. S. McKechnie, as Dominion Lands Agent at Prince Albert, Saskatchewan, and the appointment of his successor. Presented March 6, 1914.—*Mr. Neely*.....*Not printed.*

77*j*. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, telegrams and papers generally in connection with the appointment of Joseph Lemieux as postmaster at Mont Louis, County of Gaspé. Presented March 6, 1914.—*Mr. Lemieux* .....*Not printed.*

77*k*. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, petitions, affidavits, complaints, certificates, recommendations, reports and other documents relating to the engagement and appointment for the year 1913, of the captains and first and second engineers for dredging machines Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 of the Department of Marine and Fisheries, under the control of the agency at Sorel, and employed in the deepening of the St. Lawrence below Montreal. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, petitions, affidavits, complaints, certificates, recommendations, reports and other documents, relating to the engagement and appointment of the captains and engineers for the year 1913, for the tugs *Carmelia, Chambly, Contrecoeur ,De Lévis, Emilia, Iberville, James Howden, Jesse Hume, Lac St. Pierre, Lanoraie, Lotbiniere, Portneuf, Varennes and Vercheres*, of the Department of Marine and Fisheries under the control of the agency at Sorel. Presented March 23, 1914.—*Mr. Cardin*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

77*l*. Return to an Order of the House of the 23rd March, 1914, for a return showing:—
1. How many additional employees have been added to the Customs Department in the City of Halifax, since October 10, 1911.
2. Their names and salaries at the time of their appointment, their respective salaries at present, and also their respective ages at the time of appointment.
3. Whether all of them passed the necessary Civil Service examinations for the Customs service.
4. How many temporary clerks there are upon the said Customs staff, who they are, and the dates of their appointment. Presented April 2, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

77*m*. Return to an Order of the House of the 28th April, 1913, for a copy of all letters and telegrams exchanged between the Government and Messrs. Arch. Macdonald, Elz. Monpetit and others, on the subject of the appointment of caretakers of the post office at Rigaud, Messrs. Jean Baptiste Charlebois and Napoleon Vallée. Presented April 2, 1914. —*Mr. Boyer* ..... *Not printed.*

77*n*. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence, recommendations, &c., relating to the appointment of Allan Morrison, St. Peter's, N.S., as inspector of dwellings erected on Gregory Island, Richmond County, N.S., in 1912-1913, and of all accounts, charges, vouchers, &c., rendered to the Department of Marine and Fisheries by the said Allan Morrison as such inspector. Presented April 7, 1914.—*Mr. Kyte* ..... *Not printed.*

77*o*. Return to an Order of the House of the 9th February, 1914, for a return showing the names, date of appointment, length of service, remuneration and office held by each of all the employees of the Department of the Interior in the outside service since January 1, 1912, to December 31, 1913, not given in the Civil Service list of 1912 or 1913. Presented April 21, 1914.—*Mr. Neely*..... *Not printed.*

77*p*. Return to an Order of the House of the 16th April, 1914, for a return showing:—
1. How many appointments have been made in the Customs Department at Montreal since the 1st of October, 1911.
2. The names of the persons so appointed, and the dates of their respective appointments.
3. After what recommendations have they been appointed.
4. The salary of each of these new employees.
5. What increases of salaries have been granted in the same department since the same date, and to whom, and why. Presented April 29, 1914.—*Mr. Proulx.*
Not printed.

77*q*. Return to an Order of the House of the 2nd February, 1914, for a return showing the number of engineers, assistant engineers, draftsmen, clerks, divers, and students in engineering or surveying, or other parties employed by the Department of Public Works in the constituency of Bonaventure, from October 11, 1911, to date, with their names, residences, salaries, nature of their work, time employed, and on whose recommendation, together with a copy of all correspondence, and reports bearing on such employment, and of reports made to the said Department of Public Works in that constituency from January, 1913, to date. Presented April 30, 1914.—*Mr. Marcil (Bonaventure).*
Not printed.

77*r*. Return to an Order of the House of the 12th March, 1914, for a return showing:—
1. Whether Louis Philippe Thibault, Alphonse Poirier, J. A. Morin, C. F. Rioux, Thomas Thibault and Adjutor Demers, of Lévis, have been appointed to positions under the control of the Postmaster General of Canada.
2. If so, to what positions they have been appointed, what their duties are, when they were appointed and their salaries, respectively.
3. The names of the officers who have been dismissed and replaced by the above.
4. The total amount of the annual salaries of said dismissed officers. Presented May 4, 1914.—*Mr. Bourassa*..... *Not printed.*

77*s*. Return to an Order of the House of the 16th March, 1914, for a copy of all recommendations, protests, petitions, and representations received by the Government or any Department or Minister thereof, regarding the appointment of the present collector of customs at Antigonish, and of all the letters, telegrams and correspondence relating thereto. Presented May 15, 1914.—*Mr. Chisholm (Inverness)*..... *Not printed.*

77*t*. Return to an Order of the House of the 16th March, 1914, for a copy of all recommendations, protests, petitions, and representations received by the Government or any Department or Minister thereof, regarding the appointment of the present collector of customs at Antigonish, and of all the letters, telegrams and correspondence relating thereto. Presented May 16, 1914.—*Mr. Chisholm (Antigonish)*..... *Not printed.*

77*u*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the employment of Arthur Dubisson as immigration agent at Gravelburg, Sask., and all papers in connection with the said Dubisson, showing the moneys paid to him and the work performed by him. Presented May 30, 1914.—*Mr. Knowles.*
Not printed.

CONTENTS OF VOLUME 28—*Continued.*

78. Return to an Order of the House of the 7th April, 1913, for a copy of all documents, recommendations and correspondence relating to the resignation of C. A. R. Desjardins, as postmaster at St. Andre de Kamouraska, and the appointment of his successor. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

78*a*. Return to an Order of the House of the 28th April, 1913, for a copy of all complaints or charges against Fred. R. Irish, postmaster at Afton, Antigonish County, N.S., and of all correspondence on file in reference thereto. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

79. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application made by the Long Sault Development Company, with a view to dam the St. Lawrence river above the Long Sault rapids from the American to the Canadian side. Presented January 22, 1914.—*Mr. Lemieux.*
Not printed.

79*a*. Supplementary Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application made by the Long Sault Development Company, with a view to dam the St. Lawrence river above the Long Sault rapids from the American to the Canadian side. Presented February 12, 1914.—*Mr. Lemieux*.....*Not printed.*

80. Return to an Order of the House of the 21st April, 1913, for a return showing all leases of water powers granted on the Winnipeg river, the dates of such leases, to whom granted, and the location of the water powers covered by each; together with a copy of all correspondence passing between the Government, or any member thereof and any person or persons, with respect to such leases. Presented January 22, 1914.—*Mr. Martin (Regina)*.....*Not printed.*

80*a*. Return to an Order of the House of the 2nd April, 1913, for a return showing whether the Government cancelled any water lot leases on the Lachine Canal and, if so, the dates of such cancellation; the names of the lessees; length of time the cancelled leases were in force, and the rental paid in each case; the names of the lessees whose water lot leases on the said canal have not been cancelled, and the rental paid by each; the basis on which rental has been calculated and the method to be followed in future; the reasons why some leases were cancelled and others allowed to remain in force; and if tenders are to be invited through the press for such water lot leases in future. Presented January 22, 1914.—*Mr. Buchanan*.....*Not printed.*

80*b*. Return to an Order of the House of the 23rd April, 1913, for a return showing all leases or permits granted to clubs or individuals to erect or maintain boat houses on the Rideau canal between Laurier avenue bridge and Hartwells Locks, the date of such leases or permits, to whom granted, and the rental in each case; together with a copy of all correspondence between the Government, or any member thereof, and any person or persons with respect to such leases or permits and the cancellation thereof. Presented January 22, 1914.—*Mr. Murphy*.....*Not printed.*

80*c*. Supplementary Return to an Order of the House of the 2nd April, 1913, for a return showing whether the Government cancelled any water lot leases on the Lachine canal and, if so, the date of such cancellation; the names of the lessees; length of time the cancelled leases were in force, and the rental paid in each case; the names of the lessees whose water lot leases on the said canal have not been cancelled, and the rental paid by each; the basis on which rental has been calculated and the method to be followed in future; the reasons why some leases were cancelled and others allowed to remain in force; and if tenders are to be invited through the press for such water lot leases in future. Presented March 13, 1914.—*Mr. Buchanan*.....*Not printed.*

80*d*. Return to an Order of the House of the 23rd March, 1914, for a copy of the agreement for a lease of water power on the Saskatchewan river at Rocky Rapids, Alberta, made with the Edmonton Power Company, with information in detail as to the operations carried on by the company to date. Presented April 21, 1914.—*Mr. Oliver*.....*Not printed.*

81. Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between October 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented January 22, 1914.—*Mr. Sinclair*.....*Not printed.*

81*a*. Partial Return to an Order of the House of the 30th April, 1913, for a return showing a list of all newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911, together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented January 22, 1914.—*Mr. Thornton*.....*Not printed.*

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81*b*. Supplementary Return to an Order of the House of the 30th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911, together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented April 1, 1914.—*Mr. Thornton*.....*Not printed.*

81*c*. Further Supplementary Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between Octoper 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented April 2, 1914.—*Mr. Sinclair*.....*Not printed.*

81*d*. Supplementary Return to an Order of the House of the 30th April, 1913, for a Return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911; together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented April 2, 1914.—*Mr. Thornton*....*Not printed.*

81*e*. Return to an Order of the House of the 15th April, 1914, for a return showing how much money has been paid by the Government, or any department thereof, since October 10, 1911, to the Herald Publishing Company of Halifax, N.S., for advertising, printing and lithographing. Presented April 27, 1914.—*Mr. Sinclair*.....*Not printed.*

81*f*. Return to an Order of the House of the 4th February, 1914, for a return showing the names of all printing and publishing companies, and newspapers in Nova Scotia to whom any sum of money has been paid respectively, by any department of Government, during the calendar years 1912 and 1913 respectively, and the nature of the service rendered therefor. Presented April 29, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

81g. Supplementary Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between October 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented May 11, 1914.—*Mr. Sinclair*.....*Not printed.*

82. Return to an Order of the House of the 3rd February, 1913, for a copy of all letters, correspondence, reports and other documents in the possession of the Department of Railways and Canals relating to an application by the Central Railway Company of Canada to the Honourable Minister of Railways and Canals for the approval of their proposed route between Hawkesbury and South Indian. Presented January 22, 1914.—*Mr. Proulx* .....*Not printed.*

83. Return to an Order of the House of the 9th December, 1912, for a copy of all documents, papers, memoranda, rulings, findings, appeals and correspondence relating to any appeal asserted from any decision, ruling or finding of the Board of Railway Commissioners of Canada to the Privy Council of Canada, and the action taken by the Privy Council thereon. Presented January 22, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

84. Return to an Order of the House of the 7th May, 1913, for a return showing the total cost of the Elmira Branch Railway in Prince Edward Island; the total amounts paid the contractors, Whitehead Brothers; the total amount paid by the Government after taking the work off the contractor's hands, and showing the amount paid in wages each month, the names of the men to whom it was paid, the positions they held, and the wages per day to each; also showing what materials were used, each kind and class, with the cost of each, from whom purchased, and when, and the quantities left over, if any. Presented January 22, 1914.—*Mr. Hughes (P.E.I.)*.....*Not printed.*

85. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, telegrams, correspondence and documents referring in any way to the claim of the municipalities of Pictou, Antigonish, Guysboro and St. Mary's for payment or refund to them of the monies paid by said municipalities for the right of way of that part of the Intercolonial Railway running through the Counties of Pictou, Antigonish and Guysboro. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

85*a*. Return to an Order of the House of the 12th May, 1913, for a copy of all claims made by H. F. McDougall, of Grand Narrows, N.S., against the Intercolonial Railway, and of all letters, telegrams and other documents in connection with the said claim or claims; together with the particulars of said claims; the amount or amounts paid upon said claim or claims; the particular items of the claim or claims upon which payments, if any, were made; the date of the filing of the claims and of the payment or payments made thereon; and the total amount paid on said claims or upon any other claims made by the said H. F. McDougall against the said Intercolonial Railway or the Government of Canada. Presented January 22, 1914.—*Mr. Sinclair*.....*Not printed.*

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85*b*. Return to an Order of the House of the 16th February, 1914, for a copy of all documents, letters, petitions, telegrams and evidence heard, reports, &c., in connection with the claims of Eugene Demers and Joseph Olivier, of the parish of St. Nicholas, County of Lévis, for damages arising out of fires caused by the Intercolonial Railway's locomotives; and, if investigations have been held, a copy of all evidence and documents relating thereto. Presented March 6, 1914.—*Mr. Bourassa*.....*Not printed.*

85*c*. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, telegrams, reports, correspondence and documents relative to the claims made for damages from a fire in the village of Hopewell, County of Pictou, which was occasioned by sparks from a locomotive on the Intercolnial Railway. Presented May 13, 1914.—*Mr. Macdonald* .....*Not printed.*

86. Return to an Order of the House of the 14th May, 1913, for a copy of all reports, correspondence and other documents on file in the Department of Raiwlays and Canals, relating in any way to a suggested survey and construction of a line of railways from Country Harbour, Guysborough County, N.S., to Cape George, N.S., or any other point in Antigonish County. Presented January 22, 1914.—*Mr. Chisholm (Antigonish).*
Not printed.

86*a*. Return to an Order of the House of the 29th January, 1912, for a copy of all letters, written to the Right Honourable the Prime Minister, the Honourable the Minister of Railways and Canals, or any other member of the Government since October 10, 1911, by S. R. Griffin, Goldboro, N.S., John S. Wells, White Head, N.S., and G. A. R. Rowlings, Sydney, N.S., relating to the construction of a branch line of the Intercolonial Railway into the County of Guysboro, N.S., also of the replies to the same. Presented January 22, 1914.—*Mr. Sinclair*.....*Not printed.*

87. Return to an Order of the House of the 27th January, 1913, for a copy of the contract entered into by C. R. Scoles, New Carlisle, Quebec, with the Department of Railways and Canals for the completion of the Atlantic and Lake Superior Railway between Caplin and Paspebiac, and of the report of the engineers on such work, of details of payments, and of all documents bearing on such matter. Presented January 22, 1914. —*Mr. Marcil* .....*Not printed.*

88. Return to an Order of the House of the 21st May, 1913, for a copy of all documents, correspondence, reports and inquiries, relating to an accident which occurred at Trois Pistoles, Intercolonial Railway on 10th September, 1912, respecting the death of Arsène Ouellet, and the wounds inflicted on Joseph Gagnon, at the time that these two men were struck by train No. 150 on the above date. Presented January 22, 1914.—*Mr. Boulay* .....*Not printed.*

89. Annual Return respecting Trade Unions under Chapter 125, R.S.C., 1906. Presented by Hon. Mr. Coderre, January 22, 1914.....*Not printed.*

90. Return to an Order of the House of the 29th January, 1913, for a return showing:—

1. What purchases of land have been made by the Dominion of Canada since Confederation?
2. The amount of money paid for same?
3. The approximate area of land so purchased?
4. In what provinces the said land is now situated?
5. The approximate area in each province?
6. The acreage of school lands set aside by the Government for the Provinces of Manitoba, Saskatchewan and Alberta?
7. The present approximate value of the said school lands so set aside in each of the said Provinces?
8. The number of acres of the said school lands already sold in each of the said Provinces, and the proceeds of such sales, deducting expenses?
9. The acreage of lands set apart at any time by the Government as an endowment to any university, the name of the university, and the Province in which the lands are situated?
10. The number of acres of swamp lands transferred to the Province of Manitoba under the provisions of Chapter 50 of the Acts if 1885 and amendments thereto?
11. The gross amount of cash allowance made at any time by the Federal Government to each or any Province of Canada, to assist in the construction of necessary public buildings?
12. The approximate value of the railway, public works and other assets of each of the Provinces of Canada, taken over by the Federal Government at the time that each Province entered the union?
13. The annual compensation made to the Province of Manitoba, Saskatchewan and Alberta, by reason of the fact that they are deprived of the public lands as a source of revenue?
14. The debt allowance to any time placed to the credit of each of the Provinces of Canada by the Federal Government. Presented January 22, 1914.—*Mr. Sinclair.*
Not printed.

CONTENTS OF VOLUME 28—*Continued.*

90a. Supplementary Return to an Order of the House of the 29th January, 1913, for a return showing:—

1. What purchases of land have been made by the Dominion of Canada since Confederation?
2. The amount of money paid for same?
3. The approximate area of land so purchased?
4. In what Provinces the said land is now situated?
5. The approximate area in each Province?
6. The acreage of school lands set aside by the Government for the Provinces of Manitoba, Saskatchewan and Alberta?
7. The present approximate value of the said school lands so set aside in each of the said Provinces?
8. The number of acres of the said school lands already sold in each of the said Provinces, and the vroceeds of such sales, deducting expenses.
9. The acreage of lands set apart at any time by the Government as an endowment to any university, the name of the university, and the Province in which the lands are situated?
10. The number of acres of swamp lands transferred to the Province of Manitoba under the provisions of Chapter 50 of the Acts of 1885 and amendments thereto?
11. The gross amount of cash allowance made at any time by the Federal Government to each or any Province of Canada, to assist in the construction of necessary public buildings?
12. The approximate value of the railway, public works and other assets of each of the Provinces of Canada, taken over by the Federal Government at the time that each Province entered the union?
13. The annual compensation made to the Provinces of Manitoba, Saskatchewan and Alberta, by reason of the fact that they are deprived of the public lands as a source of revenue?
14. The debt allowance to any time placed to the crédit of each of the Provinces of Canada by the Federal Government. Presented March 12, 1914.—*Mr. Sinclair.*

Not printed.

91. Partial Return to an Order of the House of the 12th May, 1913, for a return showing the names and purposes of the several Commissions created by legislation or Orders in Council since October 12, 1911; the names of the members of the several commissioners, with their respective salaries and remuneration; the names of commissions still in existence; and the names of commissions created since October 12, 1911, which have ceased to exist. Presented January 22, 1914.—*Mr. Oliver*.....*Not printed.*

91a. Partial Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of each Commission issued by the Government since October 10, 1911, directing an investigation to be held; and also for a copy of the evidence taken and the report made in each case that has been concluded. Presented January 22, 1914.—*Mr. Murphy* .....*Not printed.*

91b. Further Supplementary Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of each Commission issued by the Government since October 10, 1911, directing an investigation to be held; and also for a copy of the evidence taken and the report made in each case that has been concluded. Presented February 9, 1914.—*Mr. Murphy*.....*Not printed.*

91c Return to an Order of the House of the 9th December, 1912, for a return showing the number of Commissions formed by the Government since September 21, 1912, the names and the occupations of the Commissioners appointed, their duties, the duration of their services, and their remuneration. Presented February 12, 1914.—*Mr. Devlin.*

Not printed.

91d. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of the Order in Council appointing a Commission for the purpose of beautifying the city of Ottawa and vicintiy, of all correspondence with regard to the same, and of all reports made by the commission up to date. Presented March 6 1914. —*Sir W. Laurier* .....*Not printed.*

91e. Supplementary Return to an Order of the House of the 12th May, 1913, for a return showing the names and purposes of the several Commissions created by legislation or Orders in Council since October 12, 1911; the names of the members of the several commissioners, with their respective salaries and remuneration; the names of commissions still in existence; and the names of commissions created since October 12, 1911, which have ceased to exist. Presented March 9, 1914.—*Mr. Oliver*.....*Not printed.*

91f. Return to an Order of the House of the 9th February, 1914, for a return showing the number and particulars of Commissions appointed or issued under the Inquiries Act since October 1, 1911, the purpose or object thereof, the name of the Commissioner or Commissioners, and the cost of each to the present time. Presented May 29, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

92. Partial Return to an Order of the House of the 28th April, 1913, for a return showing all those who have been holding investigations within the judicial district of Three Rivers, since October 15, 1911, to date, in reference to the conduct of men holding offices from the Dominion Government, the place where each investigation was held, the amount paid to each investigator in each case; the names of the solicitors employed in each case, the post office addresses, and the amount paid in each case to the solicitor. Presented January 22, 1914.—*Mr. Bureau*.....*Not printed.*

93. Return to an Order of the House of the 26th March, 1913, for a return showing whether the Government paid or intends to pay fees and disbursements of the witnesses summoned by the commissioners appointed by it in the County of Lévis, to hold inquiries on the conduct of public officers whose dismissal had been requested; the amounts which have been paid and to whom, and the sum remaining to be paid for the same purpose. Presented January 23, 1914.—*Mr. Bourassa*.....*Not printed.*

93*a*. Partial Return to an Order of the House of the 4th June, 1913, for a return showing the total expenditure to date by the present administration in connection with the investigation of charged partisan conduct against officials. Presented January 23, 1914.—*Mr. Sinclair* .....*Not printed.*

93*b*. Partial Return to an Order of the House of the 7th May, 1913, for a return showing in deaail the names of witnesses summoned by Commissioner H. P. Duchemin in connection with all investigations held by him in the counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented January 23, 1914.—*Mr. Carroll*.....*Not printed.*

93*c*. Return to an Order of the House of the 9th April, 1913, for a return showing in detail the expenditure incurred since October 11, 1911, in connection with investigations held in Bonaventure County by commissioners appointed by the Departments of the Post Office, Customs, and Marine and Fisheries into charges made against employees of said departments of offensive political partisanship, together with the names and amounts paid to each of said commissioners in each investigation, as well as details of amounts paid to witnesses and others. Presented January 23, 1914.—*Mr. Marcil*.....*Not printed.*

93*d*. Return to an Order of the House of the 26th February, 1913, for a copy of all statements of account for salary or remuneration to the commissioner, and his expenses for witness fees, and all other expenses in connectoin with the investigation by Commissioner Duchemin, of the following, persons in the Ciunty of Guysboro, Nova Scotia namely:—

H. L. Tory, fishery officer, Guysboro.
John W. Davis, fishery officer, Guysboro.
Patrick Shea, postmaster, Tompkinsville.
John M. Rogers, postmaster, East Roman Valley.
James Bowles, postmaster, Alder River.
Abner M. Carr, postmaster, St. François Harbour.
Everett Hadley, postmaster, Oyster Ponds.
Parker S. Hart, postmaster, Lower Manchester.
S. M. Ferguson, preventive officer, Oyster Pond.
Robert Hendsbee, postmaster, Half Island Cove.
A. B. Cox, Manager Reduction Works, Canso.
Edward Kelly, engineer, Reduction Works, Canso.
D. S. Hendsbee, weigher, Reduction Works, Canso.
Alex. Roberts, postmaster, Canso.
David Sutherland, caretaker, Canso.
Henry Hanlon, chief engineer, Hatchery, Canso.
Thos. Sullivan, assistant engineer, Canso.
W. G. Matthew, cockswain life-boat, Canso.
Patrick Ryan, assistant cockswain life-boat, Canso.
M. McCutcheon, postmaster, Sonora.
Stanley McCutcheon, preventive officer, Sonora.
Freeman Pride, lightkeeper, Sonora.
David Reid, fishery officer, Port Hilford.
L. M. Pye, customs officer, Liscomb.
Stanley Hemlow, lightkeeper, Liscomb.
W. H. Hemlow, keeper storm drum, Liscomb.
R. Conroy, postmaster, Country Harbour.
John Milward, postmaster, Stormont.
A. W. Salsman, postmaster, Lower Country Harbour.
W. B. Harris, postmaster, Whitehead.
E. L. Munro, customs officer, Whitehead.
W. L. Munro, lightkeeper, Whitehead.
Patrick Conway, lightkeeper, Whitehead.
H. P. Munro, cockswain life-boat, Whitehead.
Levi Munro, harbour master, Whitehead.
William McKinnon, postmaster, Erinville.

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J. H. McMillan, manager hatchery, Isaac's Harbour.
Sanford Langley, postmaster, Isaac's Harbour North.
Fred. E. Cox, engineer lobster hatchery, Isaac's Harbour.
Simon Hodgson, assistant engineer, Isaac's Harbour.
Archiba'd Brass, postmaster, L. New Harbour.
Parker Sangster, postmaster, New Harbour West.
William Gerrior, customs officer, Larry's River.
James M. Webber, lightkeeper, Torbay Point.
W. A. Hattie, preventive officer, Mulgrave.
J. F. Reeves, postmaster, Mulgrave.
John P. Meagher, foreman deck-hand, Mulgrave.
Philip H. Ryan, Intercolonial Railway employee, Mulgrave.
Alex. Wilkinson, Intercolonial Railway employee, Mulgrave.
Alex. McInnis, car inspector, Mulgrave.
Frank Fougere, postmaster, Port Felix.
Sam. Smith, postmaster, Port Felix, West.
Captain Freeman Myers, postmaster, Cole Harbour.
George Taylor, postmaster, Beckerton.
Stephen C. Richard, lightkeeper, Charlo's Cove. Presented January 26, 1914.—*Mr. Sinclair* ..... *Not printed.*

93e. Supplementary Return to an Order of the House of the 7th May, 1913, for a return showing in detail the names of witnesses summoned by Commissioner H P. Duchemin in connection with all investigations held by him in the Counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented February 10, 1914.—*Mr. Carroll*..... *Not printed.*

93f. Return to an Order of the House of the 9th December, 1912, for a return showing when H. P. Duchemin, of Sydney, Nova Scotia, was appointed commissioner to hold investigations, the number of investigations held since his appointment, names of officials investigated, if evidence and report in each investigation has been forwarded by Mr. Duchemin to the department interested, if not, in what cases has no evidence and report been submitted, salary or remuneration received in each case, and amount paid for travelling expenses in each case. Presented February 10, 1914.—*Mr. Carroll.*
Not printed.

93g. Return to an Order of the House of the 23rd February, 1914, for a return showing the expenditures by the Intercolonial Railway in connection with all the inquiries and investigations held by H. P. Duchemin, concerning any and all employees of the Department of Railways and Canals, or of the Intercolonail Railway, for any cause whatever, and relating to any complaints or charges, or to any matter of whatsoever nature, giving in detail the items of all accounts or bills of or payments to the said H. P. Duchemin in connection with same, during the years 1912, 1913, and for the year 1914 to date; together with a statement showing the total amounts paid in each specified investigation and the total paid in each year, for the whole period to the said H. P. Duchemin. Presented March 5, 1914.—*Mr. Emmerson*..... *Not printed.*

93h. Supplementary Return to an Order of the House of the 7th May, 1913, for a return showing indetail the names of witnesses summoned by Commissioner H. P. Duchemin in connection with all investigations held by him in the Counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented March 17, 1914.—*Mr. Carroll*..... *Not printed.*

93i. Return to an Order of the House of the 23rd March, 1914, for a return showing in detail the expenses and cost of an inquiry or investigation held by Commissioner Adair, under the authority of the Department of Railways and Canals, into the affairs of the Electrical Branch of the Intercolonial Railway at Moncton, and the conduct of John W. Gaskin and others, in relation to their services in said branch or otherwise, held during the year 1912; together with the names of the commissioner, the agents, attorneys, counsel, constables, police officers, detectives, witnesses or other persons in connection with said inquiry; the number of days consumed and paid for in the conduct thereof, and the services rendered by each person in connection therewith; and a detailed statement of the sum or sums of money paid to each party therefor, at what rate and the amounts paid to each witness sworn and in attendance or otherwise, together with a copy of all bills, claims or accounts rendered in connection with said inquiry, and of all vouchers for moneys paid, by whom paid and to whom; with a copy of all letters or other correspondence relating to the appointment of a commissioner, and of counsel to be engaged or other officers employed, and relating to the compensation to be paid for services, and in connection with any of said bills, accounts, payments and vouchers, with a statement or summary of the total cost of said investigation, showing the number of railway employees called as witnesses the witness fees allowed and paid them, and the cases in which their time respectively was not allowed them while absent to give such evidence, and the cases to which such time was allowed and no deduction made from their wages or salaries for the period of their absence in attendance at such inquiry as such witnesses respectively. Presented May 13, 1914.—*Mr. Emmerson*....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

94. Return to an Order of the House of the 9th December, 1912, for a return showing how many citizens of the United States have been employed by the Government since November 1, 1911, in what department employed, their names and occupations and salary paid to each, and also, the number appointed under section 21 of the Civil Service Act. Presented January 24, 1914.—*Mr. Murphy*.....*Not printed.*

95. Return to an Order of the House of the 23rd April, 1913, for a copy of all letters, telegrams, papers and documents in any way relating to the purchase of property at Long Beach St. Mary's, Digby County, N.S., for a lobster pond. Presented January 23, 1914.—*Mr. Law*.....*Not printed.*

96. Return to an Order of the House of the 24th February, 1913, for a copy of all requests, petitions, &c., made to the Government, or any department thereof, by the residents of Mira, County of Cape Breton, for subsidies for boats, wharf accommodations, or increased facilities on the Mira river. Presented January 23, 1914.—*Mr. Carroll.*
Not printed.

97. Return to an Order of the House of the 7th May, 1913, for a copy of all reports, correspondence, telegrams and other documents in the custody or control of the Militia Department or the Railway Department, concerning matters brought to the attention of the Militia Department by B. A. Ingraham, of Sydney, N.S., with reference to the transportation of the Sydney militia over the Intercolonial Railway in the year 1912. Presented January 23, 1914.—*Mr. Carroll*.....*Not printed.*

98. Medical inspection of immigrants at port of entry in Canada.—(*Senate*.....*Not printed.*

99. Public health service, several branches of R.S. engaged in.—(*Senate*).....*Not printed.*

100. Proposed harbour at Skinner's Pond—Surveys made for, &c.—(*Senate*).....*Not printed.*

101. Investigation held in 1912 *re* dredging operations in British Columbia.—(*Senate*).
Not printed.

101*a*. Investigation held by Mr. Wilson, B.C., against Captain Murdock Young.—(*Senate*).
Not printed.

102. Quantities of wheat by grades received at elevators at Fort William.—(*Senate*).
Not printed.

103. Projected railway or highway bridge over the Restigouche River, N.B. Presented January 26, 1914.—*Mr. Marcil*.....*Not printed.*

104. Relating to the employees of the different departments at Ottawa, the provinces, and territories, &c. Presented January 26, 1914.—*Mr. Wilson (Laval)*.....*Not printed.*

104*a*. Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented January 26, 1914.—*Mr. Murphy*.....*Not printed.*

104*b*. Partial Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigaiton was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented February 10, 1914.—*Mr. Murphy*.....*Not printed.*

104*c*. Further Supplementary Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented March 10, 1914.—*Mr. Murphy*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

104*d*. Return to an Order of the House of the 23rd February, 1914, for a return showing the total number of officials and employees in the Department of Public Printing and Stationery on February 1, 1914; and the increase in wages granted to the several groups of employees during the year 1913. Presented March 18, 1914.—*Mr. Murphy.* *Not printed.*

104*e*. Return to an Order of the House of the 23rd February, 1914, for a return showing how many persons have been appointed to positions in the inside Civil Service since October 10, 1911, who had not passed the public competitive examination held by the Civil Service Commission in May and November of each year.

2. How many of such persons were appointed in each department. Presented March 23, 1914.—*Mr. Murphy*.....*Not printed.*

104*f*. Return to an order of the House of the 4th March, 1914, for a return showing how many persons have been appointed to the Inside Service of the Post Office Department by the present Government, with the names of the appointees, the grade each of them was appointed to, and the salary in each case; how many of these appointees passed the Civil Service examination, and how many did not do so, with the names in each case. Presented April 1, 1914.—*Mr. Proulx*.....*Not printed.*

104*g*. Further Supplementary Return to an Order of the House of 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented April 2, 1914.—*Mr. Murphy*.....*Not printed.*

104*h*. Return to an Order of the House of the 2nd April, 1914, for a return showing how many certificates for promotion have been asked from the Civil Service Commissioners since the 31st March, 1913; how many of such certificates have been refused, and to whom, and the reasons given in each case for such refusal. Presented April 16, 1914.—*Mr Carroll* .....*Not printed.*

104*i*. Return to an Order of the House of the 30th March, 1914, for a return showing the salary of each deputy minister; the number of clerks or employees under each of the deputy ministers, or over whose work the deputy is supposed to exercise supervision; the salary of the Customs Commissioner, and length of time employed. Presented April 23, 1914. —*Mr. Chisholm (Inverness)* .....*Not printed.*

105. Return called for by Section 88, of Chapter 62, Revised Statutes of Canada, requiring that the Minister of the Interior shall lay before Parliament, each year, a return of liquor brought from any place out of Canada into the Territories by special permission in writing of the Commissioner of the Northwest Territories. Presented by Hon. Mr. Roche, January 27, 1914 .....*Not printed.*

106. Copy of the Seventh Joint Report of the Commissioners for the Demarcation of the Meridian of the 141st Degree of West Longitude. Presented by Hon. Mr. Roche, January 28, 1913.....*Not printed.*

107. Return showing lands sold by the Canadian Pacific Railway Company during the year which ended on the 1st October, 1913. Presented by Hon. Mr. Roche, January 28, 1914. *Not printed.*

108. Regulations relating to the Parcel Post Service, 1914. Presented by Hon. Mr. Pelletier, January 28, 1914.....*Not printed.*

109. Report of the proceedings of the Commisioners of Internal Economy of the House of Commons for 1912-1913, pursuant to Rule 9. Presented by His Honour the Speaker, February 2, 1913 .....*Not printed.*

110. Return of Orders in Council which have been published in the *Canada Gazette* between the 1st October, 1912, and 30th November, 1913, in accordance with the provisions of "The Forest Reserves and Park Act," Section 19, of Chapter 10, 1-2 George V. Presented by Hon. Mr. Roche, February 2, 1914.....*Not printed.*

110*a*. Return of Orders in Council which have been published in the *Canada Gazette*, between the 1st October, 1912, and 30th November, 1913, in accordance with the provisions of Section 5 of "The Dominion Lands Survey Act," Chapter 21, 7-8 Edward VII. *Not printed.*

110*b*. Return of Orders in Council which have been published in the *Canada Gazette*, between 1st October, 1912, and 30th November, 1913, in accordance with the provisions of Section 77 of "The Dominion Lands Act," Chapter 20 of the Statutes of Canada, 1908. *Not printed.*

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110*c*. Return of Orders in Council which have been published in the *Canada Gazette* and in the British Columbia *Gazette*, between 1st October, 1912, and 30th November, 1913, in accordance with provisions of subsection (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the Province of British Columbia. Presented by Hon. Mr. Roche, February 2, 1914.....*Not printed.*

110*d*. Return of copies of all Orders in Council, plans, papers and correspondence which are required to be presented to the House of Commons, under a resolution passed on the 20th February, 1882, since the date of the last return, under such resolution. Presented by Hon. Mr. Roche, January 28, 1914.....*Not printed.*

110*e*. Return to an Order of the House of the 9th February, 1914, for a copy of all letters, papers, homestead inspector's reports, declarations and of all other documents connected in any way with the entry and cancellation proceedings against the homestead entry of James Bruce for the southeast quarter section 36, in townshpi 49, range 27, West second meridian. Presented March 6, 1914.—*Mr. Neely*.....*Not printed.*

110*f*. Return to an Order of the House of the 9th February, 1914, for a copy of all papers in connection with the disposition of the S.E. ¼, section 16, township 25, range 5, West fifth meridian. Presented March 10, 1914.—*Mr. Oliver*.....*Not printed.*

110*g*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the S.W. ¼, 23-16-12 W, 3 M. Presented March 10, 1914.—*Mr. Knowles* .....*Not printed.*

110*h*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the N.E. ¼-22-11-5-W. 3 M. Presented March 23, 1914.—*Mr. Knowles. Not printed.*

110*i*. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams and papers concerning coal lands situate in 28-19, 27-18, 27-17 and 28-18 West of the fourth meridian. Presented April 21, 1914.—*Mr. Buchanan*.....*Not printed.*

110*j*. Supplementary Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the N.E. ¼-22-11-5 W. 3 M. Presented May 5, 1914.—*Mr. Knowles* .....*Not printed.*

110*k*. Return to an Address to His Royal Highness the Governor General of the 20th April, 1914, for a copy of all documents, letters, telegrams, papers, Orders in Council and agreements of sale, in connection with the sale by the Government of Canada of the following lands in the railway belt in British Columbia, viz.: Townships 23 and 24, range 18; townships 23 and 24, range 19; townships 24 and 25, range 20; townships 25, 26 and 27, range 21; townships 26 and 27, range 22, all West of the fifth meridian. Presented May 18, 1914.—*Mr. Buchanan*.....*Not printed.*

110*l*. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, telegrams, &c., in the Department of the Interior in connection with the N.W. ¼ section 20-4, range 16 west of the second meridian. Presented May 18, 1914.—*Mr. Turriff*. *Not printed.*

110*m*. Return to an Order of the House of the 27th April, 1914, for a copy of all papers, letters, telegrams, &c., in possession of the Department of the Interior in connection with the N-½-1-3-16-W. 2-M. Presented May 18, 1914.—*Mr. Turriff*.....*Not printed.*

111. Correspondence between the Imperial Government and the Government of Canada, and other documents, relating to Imperial Naturalization. Presented by Hon. Mr. Doherty, February 4, 1914 .....*Not printed.*

111*a*. Return to an Oder of the House of the 2nd February, 1914, for a copy of all correspondence and documents, or other information, as to the passage of an Act in Great Britain and the different Dominions, providing for uniformity of the Naturalization Law. Presented February 18, 1914.—*Mr. Macdonald* .....*Not printed.*

112. Account of the average number of men employed on the Dominion Police Force during each month of the year 1913, and of their pay and travelling expenses, pursuant to Chapter 92, section 6, subsection 2, of the Revised Statutes of Canada. Presented by Hon. Mr. Doherty, February 5, 1914.....*Not printed.*

113. Copy of Agreement between the Government of Canada and the Royal Mail Steam Packet Company, for a steamship service between Canada and the British West Indies. Presented by Hon. Mr. Foster, February 9, 1914.....*Not printed.*

114. Return to an Order of the House of the 2nd February, 1914, for a return showing what changes have been made in the original scheme for terminals of the Transcontinental Railway at the city of Quebec; the estimated cost of the former; the estimated cost of the said terminals under the present scheme. Presented February 10, 1914.—*Mr. Graham* .....*Not printed.*

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114*a*. Return to an Address to His Royal Highness the Governor General of the 23rd February, 1914, for a copy of all correspondence between the National Transcontinental Railway Commissioner and the Minister of Railways, and between the National Transcontinental Railway Commissioner and the Canadian Pacific Railway regarding the Joint Terminals at Quebec; also a copy of the Order in Council regarding joint terminals at Quebec, and of the final agreement regarding same. Presented March 16, 1914.—*Mr. Graham.* *Not printed.*

114*b*. Return to an Order of the House of the 16th March, 1914, for a copy of all contracts by the Department of Railways or the Transcontinental Railway Commission with the Canadian Pacific Railway Company with regard to the establishment of a joint station at the Palais, city of Quebec, and of all correspondence with regard to the same. Presented March 20, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

115. Return to an Order of the House of the 9th December, 1912, for a return showing the number of commissioners appointed by the Government since October 10, 1911, to hold investigations, giving their names, the amount paid to each commissioner up to November 21, 1912, the number of the said commissioners still under pay, with their names. Presented February 10, 1914.—*Mr. Murphy*.....*Not printed.*

116. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, documents, correspondence, &c., relating to requests for the temporary suspension of the application of the dumping clause of the Customs Tariff Act in reference to wire rods or any other products or articles, made to Department of Customs, or the Department of Finance, since November 1, 1911. Presented February 10, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

117. Return to an Order of the House of the 20th January, 1913, for a copy of all proposals, offers, agreements, reports, estimates, letters, telegrams and of all other communications or documents in the possession of the Department of Railways and Canals, or of the Prime Minister of Canada, or of any other department of the Government, filed with said department or any of them, since the first day of January, 1910, relating to or in any way appertaining to the question or proposal of acquiring any or all, or any one of the lines of railways connecting with the Intercolonial Railway along its line, and serving as a feeder or feeders of said railway, either by lease, purchase or otherwise, also of all proposals, offers, requests, applications, petitions, memorials, or other documents, and of all letters, telegrams and other communications and correspondence, relating to or in any manner appertaining to the acquisition by any Railway company of running rights, so called, or the securing of a leasehold or other interest involving the rights by any Railway company to operate its trains over the rails of the Intercolonial Railway, together with a copy of all answers, letters, telegrams, correspondence and reports relating thereto, on the files of the Department of Railways and Canals, or of the Prime Minister, or of any Department of the Government. Presented February 10 1914.—*Mr. Emmerson* .....*Not printed.*

117*a*. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, memorials, petitions, engineers' reports and other documents exchanged by or on behalf of the proprietors of the Quebec Oriental Railway and the Atlantic, Quebec and Western Railway, and the Department of Railways and Canals, since last session, with the view of the acquisition by the Government of these roads as branch lines or feeders of the Intercolonial Railway. Presented March 6, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

117*b*. Return to an Order of the House of the 9th February, 1914, for a copy of all letters, telegrams, petitions, reports, correspondence and other documents on file in any Department of the Government, or in the possession of any member of the Government, relating to, or in any manner connected with, the proposal to have a spur line or siding to connect the new public wharf at Sackville, N.B., with the Intercolonial Railway at that place, and of all letters, telegrams and other correspondence passed between any person or persons and any member of the Government. Presented March 11, 1914.—*Mr. Emmerson* .....*Not printed.*

117*c*. Return to an Order of the House of December 9, 1912, for a copy of the report made by Mr. Tessier to the Department of Railways and Canals on a proposed line of railway from Orangedale to Cheticamp in the County of Inverness, N.S.; and also all petitions, memorials and correspondence referring to the proposed line of railway. Presented March 17, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

117*d*. Return to an Order of the House of the 23rd March, 1914, for a copy of all petitions, correspondence, engineers' reports of surveys and of all other reports on file, referring to a proposed diversion of the Intercolonial Railway from, at or near Linwood Station, through the districts of Linwood, Cape Jack and to village of Harbour au Bouché; and more particularly of the petitions and reports relating to such diversion filed in or about the years 1887 and 1891. Presented April 7, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

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117e. Return to an Order of the House of the 23rd March, 1914, for a return showing the names of the successful contractors, with the particulars of their schedule prices respectively, on the contracts awarded by the Intercolonial Railway for the work of double tracking from Chaudiere Curve to St. Romuald, Quebec, and the division line from Nelson to Derby Junction, New Brunswick, and the division or spur line from North Sidney to Leitche's Creek, Nova Scotia, with a copy of the reports, correspondence and recommendations relating to the awarding of said tenders or contracts respectively, and also showing the estimate of cost of said works respectively. Presented April 15, 1914.—*Mr. Emmerson* ..... *Not printed.*

117f. Return to an Order of the House of the 16th March, 1914, for a copy of all memoranda, instructions and authorizations issued by the Minister of Railways and Canals since October 11, 1911, relating to the eliminating of the present grades and replacing the light bridges with heavier steel structure on the Intercolonial Railway; and of all memoranda, recommendations and reports made by Mr. F. P. Gutelius or the Board of Management of the Intercolonial Railway thereon. Presented May 6, 1914.—*Mr. Kyte.*
Not printed.

118. Memorandum of special claim on behalf of Prince Edward Island in respect to representation in the House of Commons. Presented by Hon. Mr. Foster, February 10, 1914.
Printed for distribution and sessional papers.

118a. Memorandum on behalf of Nova Scotia, New Brunswick and Prince Edward Island, claiming the right to have their original representation in the House of Commons restored. Presented by Hon. Mr. Foster, February 10, 1914.
Printed for distribution and sessional papers.

119. Copy of the proceedings and resolutions adopted at the last Interprovincial Conference. Presented by Hon. Mr. Foster, February 10, 1914.
Printed for distribution and sessional papers.

119a. Minutes of the Proceedings in Conference of the representatives of the Provinces, October, 1913. Presented by Hon. Mr. Borden, March 11, 1914..... *Not printed.*

120. Return to an Order of the House of the 2nd June, 1913, for a copy of the application of Pacifique Leroux for damages sustained by removal of a bridge on the Soulanges Canal, and of all reports and correspondence on the same. Presented February 12, 1914.—*Sir Wilfrid Laurier* ..... *Not printed.*

121. Return to an Order of the House of the 20th January, 1913, for a copy of all plans, proposals, diagrams, specifications, reports, surveys, requests, correspondence, letters, telegrams and of all other communications and documents in possession of the Department of Railways and Canals, relating or in any wise appertaining to the proposed steam ferry service for all seasons of the year between the mainland of New Brunswick, or of Nova Scotia, and Prince Edward Island, whereby a connection could be made between the Intercolonial Railway and the Prince Edward Island Railway, by the transfer of railway cars over and across the waters of the Straits of Northumberland by means of said proposed ferry, together with a statement of all estimates and figures as to the total cost of the installation of such ferry, and the items of said estimate or estimates in detail. Presented February 12, 1914.—*Mr. Emmerson*..... *Not printed.*

121a. Return to an Order of the House of the 11th December, 1912, for a copy of all letters, telegrams and other documents relative to the establishment of a car ferry between Prince Edward Island and the mainland, of the report or reports of any engineers or experts in regard to the said proposal, and of their estimates of the cost thereof, the advertisement calling for tenders therefor, and a copy of any plans, conditions or proposed specifications therefor, or in regard thereto, and of any tenders received in response to said advertisement, of the reports, if any, of any officials in regard thereto, and of all data in possession of the Department in respect of said project. Presented February 12, 1914.—*Mr. Macdonald*..... *Not printed.*

122. Return to an Order of the House of the 2nd February, 1914, for a return showing the total amount of liability in the form of temporary loans on the last day of each month during the period between the 1st day of May, 1913, and December 31, 1913, together with, in each case, the rate of interest paid upon said amounts during the same periods. Presented February 12, 1914.—*Mr. Maclean (Halifax)*..... *Not printed.*

123. Report of the Royal Commission appointed to investigate the construction of the National Transcontinental Railway, together with the evidence taken and exhibits filed before the said commission. Presented by Hon. Mr. Cochrane, February 12, 1914.
Printed for distribution and sessional papers.

123a. Return to an Order of the House of the 23rd February, 1914, for a copy of the assignment by M. P. and J. T. Davis in September, 1909, of contracts numbers 16 and 17 on the National Transcontinental Railway to O'Brien, Fowler and McDougall, and of the Transcontinental Commissioner's approval thereof, in the said month of September, 1909. Presented March 4, 1914.—*Mr. Graham*..... *Not printed.*

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123*b*. Return to an Order of the House of the 18th February, 1914, for a copy of the contract with Mr. Joseph Gosselin for the locomotive and car shops at St. Malo, and of all telegrams, letters and correspondence between the Department and Mr. W. J. Press, mechanical engineer, or the chief engineer, with regard to change of the price of 85 cents per cubic yard for common excavation to the price of $2.30 per cubic yard for frozen earth. Presented March 11, 1914.—*Mr. Graham*.....*Not printed.*

123*c*. Return to an Address to His Royal Highness the Governor General of the 16th February, 1914, for a copy of all papers in any way relating to the tender, original contract, and amended contract of Mr. Joseph Gosselin for the locomotive and car shops at St. Malo, Quebec, together with a copy of the advertisements for tenders, the specifications, the contract, the amended contract, reports of engineers, recommendations to Council, Orders in Council, letters, telegrams, minutes or reports of interviews, and of all other documents referring in any way to the said contract or the amendment thereof. Presented March 11, 1914.—*Mr. Graham*.....*Not printed.*

123*d*. Return to an Address to His Royal Highness the Governor General of the 23rd February, 1914, for a copy of all correspondence in connection with the appointment of Messrs. Lynch-Staunton and Gutelius as commissioners to investigate the cost of construction of the Eastern division of the National Transcontinental Railway, and also of the Order in Council appointing them. Presented March 12, 1914.—*Mr. Graham.*
Not printed.

123*e*. Return to an Order of the House of the 23rd February, 1914, for a copy of the report of Geo. S. Hodgins, of New York, regarding the Transcona shops of the Transcontinental Railway, dated June 10, 1912. Presented March 19, 1914.—*Mr. Graham*..*Not printed.*

123*f*. Return to an Order of the House of the 23rd March, 1914, for a copy of all plans and profiles designed by the engineers, in connection with the intended construction of the Transcontinental Railway from a point called Ste. Claire, County of Dorchester, between the twentieth and thirtieth miles, east of the Quebec Bridge, going through the parishes of St. Malachie, Standon, Cranbourne , Ste. Germaine and Ste. Justine, passing through the townships of Panet, Rolette and Valois, towards Ste. Perpetue, on the 105th mile east of the Quebec bridge, and of all the information and reports on the nature of land, timber and minerals of the places through which the engineers have been, showing also how much the railway would have cost per mile had it been built in that part of the country. Presented April 7, 1914.—*Mr. Sevigny*.....*Not printed.*

123*g*. Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence, messages, petitions, and other documents in connection with the choice of a site intended for the construction of a station at the village of St. Eleuthere, on the National Transcontinental Railway. Presented April 15, 1914.—*Mr. Lapointe (Kamouraska)* .....*Not printed.*

123*h*. Return to an Order of the House for a return showing.—

1. What kind of coaling plants have been provided on the National Transcontinental Railway?
2. How many have been provided?
3. Where they have been constructed?
4. If any tenders were called for them?
5. The name and address of the lowest tenderer.
6. From whom they were obtained and at what price? Presented April 15, 1914. —*Mr. Macdonald* .....*Not printed.*

124. Return to an Address to His Royal Highness the Governor General, of the 2nd February, 1914, for a copy of all decisions of the Board of Railway Commisioners made on or after the 10th of October, 1911, on which appeals have been taken to the Governor in Council, and of all decisions given by the Governor in Council on such appeals. Presented February 13, 1914.—*Mr. Sinclair*.....*Not printed.*

125. Return to an Order of the House of the 2nd February, 1914, for a copy of all rules and regulations made and passed by the Board, with the approval of the Minister, under the provisions of the Intercolonial and Prince Edward Island Railways Employees' Provident Fund Act, pursuant to section eight of said Act. Presented February 13, 1914.—*Mr. Emmerson* .....*Not printed.*

125*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the transactions and proceedings of the so-called Provident Fund Board from the 1st day of January, A.D., 1912, to date, with the names of applicants and their addresses and the nature of their employment, for retirement under the provisions of The Intercolonial and Prince Edward Island Railways Employees' Provident Fund Act, and a statement of the names so retired during that period, showing the amount of their respective retiring allowances, their respective terms of service, their respective ages, and the total of the fixed yearly charges upon the said fund made thereby; together

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with a copy of all correspondence, letters, documents and other communications relating to such applications and retirements on file in the Railway Department either at Moncton or at Ottawa, and of all correspondence, letters, petitions or other communications addressed to and received by the Minister of Railways and Canals, the Department, or any official thereof, or any member of the Government from any member of Parliament, or other person charged with the responsibility of directing Government or railway patronage, or from any person or persons, club or association assuming to advise or direct with respect to any such patronage, and of all replies made to any such letters, petitions or other communications. Presented March 3, 1914.—*Mr. Emmerson* ....*Not printed.*

126. Return to an Order of the House of the 2nd February, 1914, for a return showing the amounts of receipts and expenditures on the Intercolonial Railway during the months of April, May and June, of 1913, respectively, giving separately the revenue from passenger trains, freight traffic, mails and express and miscellaneous revenue, respectively, with the total thereof during that period; also the same information respecting the corresponding months of 1912, with the total thereof for that period. Also a statement showing the working expenses or expenditure during months of April, May and June of 1913, respectively, giving separately the working expenses or expenditure on maintenance of way and structures, maintenance of equipment, traffic expenses, transportation expenses and general expenses; with the total thereof during that period; and also the same information respecting the corresponding months of 1912, with the total thereof for the same period; also a statement showing the cost of transporting freight per ton mile during the period named in the years 1912 and 1913. Presented February 13, 1914.—*Mr. Emmerson*.....*Not printed.*

126*a*. Return to an Order of the House of the 4th March, 1914, for a return showing the total revenue of the Intercolonial Railway during the fiscal year 1912-1913, and the revenue from Campbellton and all stations east of Campbellton, and from those west thereof as far as Halifax, on the main line, including the branches east of Campbellton, Prince Edward Island Railway excluded. Presented March 17, 1914.—*Mr. Boulay.*
Not printed.

126*b*. Return to an Order of the House of the 2nd February, 1914, for a return showing the total earnings of the Intercolonial Railway on Division 3 in connection with passenger traffic for the calendar years 1910, 1911, 1912 and 1913 respectively, and the monthly passenger traffic earnings for each of the said years; the total expenses or expenditures connected with the said passenger traffic on said division during the said years respectively; together with a statement showing the monthly passenger traffic expenses or expenditures connected with said passenger traffic for each of the months during the said years; and showing, in addition, the loss and surplus for each of said years and the months thereof respectively, in connection with the passenger traffic on said division 3 between St. John and Halifax; also a statement of the revenue and expenditures on the transactions connected with said passenger traffic over said division during the months of December, 1913, and January, 1914, separately; and also a statement showing the gross passenger earnings for December, 1912, and January, 1914, respectively, and the gross expenditures with the passenger traffic for the said months respectively; together with a copy of all reports, returns, letters and correspondence relating to the earnings, expenditures or losses or surpluses on said division either in connection with freight or passenger traffic. Presented April 7, 1914.—*Mr. Emmerson*....*Not printed.*

127. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the employees of all kinds on the Soulanges Canal in the section extending from the foot of the canal to the first bridge; with the functions of each of them, the salary thereto attached and the date of their hiring during the season of navigation. Presented February 13, 1914.—*Mr. Boyer*.....*Not printed.*

128. Return to an Order of the House of the 3rd February, 1914, for a return showing:—

1. The names of all persons from whom land or property has been expropriated for right of way and station purposes in connection with the Dartmouth to Dean Settlement Branch of the Intercolonial Railway of Canada.

2. The quantity of land or property so expropriated.

3. The amount paid or offered to such person or persons for such land or property, in cases where payment or an offer has been made. Presented February 13, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

129. Copy of the International Convention for the safety of human life at sea. Presented by Hon. Mr. Hazen, February 16, 1914.....*Printed for distribution and sessional papers.*

129*a*. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence with the Imperial authorities, or any commercial bodies, on the subject of Safety of Life at Sea; and of the Order in Council appointing representatives of Canada on the International Conference on Safety of Life at Sea. Presented February 20, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

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130. Return to an Order of the House of the 9th February, 1914, for a copy of all accounts, bills, receipts and vouchers in connection with the services of N. W. White, during 1912 and 1913, as commissioner to inquire into Indian lands in the Province of British Columbia. Presented February 17, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

131. Return to an Order of the House of the 2nd February, 1914, for a copy of all documents whatsoever relating to the investigation of a claim of Jean Ross or Joseph Ross, of Anqui, County of Rimouski, Province of Quebec, against the Intercolonial Railway, following an accident to a horse, which occurred on the 10th of December, 1906. Presented February 17, 1914.—*Mr. Boulay*.....*Not printed.*

132. Copy of the Order in Council appointing a commission to investigate the cost of living. Presented February 17, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

133. Statement of the population of Canada and its Provinces and Territories in the years 1871, 1881, 1891, 1901 and 1911, according to the census returns. Presented by Hon. Mr. Borden, February 17, 1914.....*Not printed.*

134. Return to an Order of the House of the 9th February, 1914, for a copy of all protests, if any, by the Grand Trunk Pacific Railway Company, against changes in grades of the National Transcontinental Railway from Winnipeg eastward, and terminal facilities at Quebec; of all subsequent approvals of such changes, if any, by the Grand Trunk Pacific Railway Company, and of all correspondence on the above subject. Presented February 18, 1914.—*Sir W. Laurier*.....*Not printed.*

135. Copy of Second Interim Report of the Royal Commission on the natural resources, trade and legislation of certain portions of His Majesty's Dominions, together with the Minutes of Evidence taken in Australia and New Zealand in 1913, in connection therewith. Presented by Hon. Mr. Foster, February 18, 1914.....*Not printed.*

136. Return to an Order of the Senate dated 27th January, 1914, for a copy of the Annual Report made in January, 1913, by the Central Railway Company to the Railway Department.—(*Senate*) .....*Not printed.*

137. Return to an Order of the Senate dated 27th January, 1914, for a copy of the Annual Report made by the Salisbury and Albert Railway Company to the Railway Department.—(*Senate*) .....*Not printed.*

138. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence and documents in reference to the matter submitted to Sir William Whyte by the Government, the Transcontinental Commission or the commission appointed to investigate the construction of the National Transcontinental Railway, between the Government or any member or official thereof, and any official of the Grand Trunk Pacific Railway Company; and also of all correspondence between any member or official of either the above named commissions and the Justice Department, concerning the said matter. Presented February 19, 1914.—*Mr. Graham*.....*Not printed.*

139. Return to an Order of the House of the 16th February, 1914, for a return showing the names, salaries and grades of the private secretaries of the members of the Liberal Government on October, 1911; the names of the private secretaries employed from time to time by the members of the present Government, and the salary and grade of each. Presented February 19, 1914.—*Mr. Murphy*.....*Not printed.*

140. Return to an Order of the House of the 9th February, 1914, for a return showing how many woollen industries are operated in the country; where situated, in which province, and in what city, town or village; the number of hands employed in each, and the output for each during 1913. Presented February 19, 1914.—*Mr. Verville.*
Not printed.

141. Return to an Order of the House of the 2nd February, 1914, for a return showing the number, location, and mileage of rural mail routes established in Bonaventure County from October, 1911, to date, if any; together with a copy of all applications, memorials, reports and correspondence generally on this matter. Presented February 23, 1914.—*Mr. Marcil (Bonaventure)* .....*Not printed.*

141*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing a tabulated statement of the number of rural mail delivery routes opened since 1911, including the number of boxes used; also the new mail delivery contracts necessitated by the establishment of said routes in each county, not already moved for. Presented February 23, 1914.—*Mr. Lemieux*.....*Not printed.*

141*b*. Return to an Order of the House of the 19th February, 1914, for a return showing the number of rural mail delivery routes which have been established in Nova Scotia, and their names; and if any of the routes are provided with a daily service. Presented March 2, 1914.—*Mr. Sinclair*.....*Not printed.*

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141*c*. Return to an Order of the House of the 18th February, 1914, for a copy of all documents, petitions, letters, telegrams, &c., exchanged between any one and the Post Office Department, in connection with the establishing of a rural mail service in the Parish of Ste. Marguerite de Blairfindie, County of St. Johns and Iberville, and of all documents, letters and telegrams, &c., relating to the contracts for the conveyance of rural mail in said parish. Presented April 29, 1914.—*Mr. Demers*.....*Not printed.*

141*d*. Return to an Order of the House of the 20th April, 1914, for a return showing:—

1. Whether the rural postal delivery service has been started in the County of Quebec? If so, when and in what parishes of said county?

2. Whether public tenders have been advertised for such service? If so, when, how many were received and from whom, the amount of each tender, and what tender was accepted?

3. The price of the accepted tender, the name of the tenderer, the condition or conditions of payment, and the length of the contract. Presented April 30, 1914.—*Mr. Lachance* .....*Not printed.*

141*e*. Return to an Order of the House of the 6th April, 1914, for a copy of all letters, petitions and documents relative to the establishment of a rural mail delivery route from New Glasgow through Mount William, Granton and Abercrombie, County of Pictou. Presented May 8, 1914.—*Mr. Macdonald* .....*Not printed.*

141*f*. Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence, telegrams, petition, recommendation and other documents relating to the establistment of the rural mail service in the parish of St. Theodore d'Acton. Presented May 16, 1914.—*Mr. Marcil (Bonaventure)* .....*Not printed.*

141 (*g*). Return to an Order of the House of the 11th February, 1914, for a copy of all petitions, letters, telegrams and other papers relative to the establishment of rural mail delivery routes in the County of Pictou since January 1, 1912, together with the number of said routes, the carriers on each route, the tenders received in each case for the service, a copy of the correspondence in relation to said tenders and their acceptance, and the post offices closed or to be closed as the result of the establishment of said routes. Presented June 12, 1914.—*Mr. Macdonald*.....*Not printed.*

142. Return to an Order of the House of the 2nd February, 1914, for a return showing what new post offices have been established in the County of L'Islet since 1911; the names of the officer in charge of each of them; the revenue brought; the expenses incurred by these offices, including the salary and fees of the postmaster and charges for the conveyance of the mails; if these officers have been asked for by opetitions of the interested ratepayers, and if so, by whom; the quantity of letters and other postal matters that have passed through each of these offices since they have been established. Presented February 23, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

142*a*. Return to an Order of the House of the 30th March, 1914, for a copy of all documents, papers, petitions, correspondence, reports, &c., in connection with the opening of a post office under the name of Giasson in the parish of St. Aubert, County of L'Islet. Presented April 22, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

143. Return to an Order of the House of the 2nd February, 1914, for a return showing the names and addresses, with rank or occupation, of all persons who accompanied the Minister of Militia and Defence to the Old country and Europe during the summer of 1913, and whose expenses were paid wholly or in part by the Dominion Government, or who were paid salary or allowance during such time, with the amount paid to each person. Presented February 23, 1914.—*Mr. Carvell*.....*Not printed.*

144. Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, telegrams and other papers to be found in the Department of the Naval Service in connection with the death and burial, at Montreal, of Joseph LeBlanc, a sailor on D.G.S. *Canada*. Presented February 23, 1914.—*Mr. Sinclair*..*Not printed.*

145. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the construction of a salmon hatchery on Nipissiguit river, Gloucester County, N.B., and of the contract awarded. Presented February 23, 1914.—*Mr. Turgeon* .....*Not printed.*

146. Return to an Order of the House of the 9th April, 1913, for a copy of all correspondence, telegrams, petitions, affidavits, certificates, reports, complaints and other documents, relating to the resignation of Mr. M. C. Blais, recruiting officer of the Department of Marine and Fisheries from the Government shipyards at St. Joseph de Sorel, and to the appointment of Mr. F. P. Vanasse to this office. Presented February 23, 1914.—*Mr. Cardin* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

147. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relating to industrial disputes during the year 1913, between the operators and employees of any of the companies operating coal mines on Vancouver Island, and disturbances arising out of the same; and of any correspondence, either before or since the year 1913, with respect to any of the said disputes. And in particular of all correspondence, letters, telegrams, and other documents to or from the Prime Minister, the Honourable the Minister of Labour or any of the officers of the Department of Labour, respecting attempts at conciliation in connection with these disputes, and to or from the Honourable the Minister of Militia, or any officers of the Department of Militia and the Honourable the Minister of Justice, or any officers of the Department of Justice, respecting the calling out and services of the militia in connection with said disputes; and a statement of the arrests made and of convictions, if any, for infringement of the laws. Also a copy of the evidence taken and reports of investigations made by the Honourable the Minister of Labour, Mr. Samuel Price, Commissioner appointed by the Department of Labour, and of the Deputy Minister of Labour; together with a detailed statement of the expenses of all such investigations and expenses otherwise incurred by any of the Departments of the Government in consequence of said disputes or difficulties arising out of same. Presented February 23, 1914.—*Sir W. Laurier*.....*Not printed.*

147*a*. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams and reports that have been exchanged between the Government and the strikers and operators of coal mines in British Columbia since the beginning of the strike until the present; also a copy of all Orders in Council in connection with said strike. Presented February 23, 1914.—*Mr. Verville*.....*Not printed.*

147*b*. Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relating to industrial disputes during the year 1913, between the operators and employees of any of the companies operating coal mines on Vancouver Island, and disturbances arising out of the same; and of any correspondence, either before or since the year 1913 with respect to any of the said disputes. And in particular of all correspondence, letters, telegrams, and other documents to or from the Prime Minister, the Honourable the Minister of Labour or any of the officers of the Department of Labour, respecting attempts at conciliation in connection with these disputes, and to or from the Honourable the Minister of Militia, or any officers of the Department of Militia and the Honourable the Minister of Justice, or any officers of the Department of Justice, respecting the calling out and services of the militia in connection with said disputes; and a statement of the arrests made and of convictions if any, for infringement of the laws. Also a copy of the evidence taken and reports of investigations made by the Honourable the Minister of Labour, Mr. Samuel Price, Commissioner appointed by the Department of Labour, and of the Deputy Minister of Labour; together with a detailed statement of the expenses of all such investigations and expenses otherwise incurred by any of the Departments of the Government in consequence of said disputes or difficulties arising out of same. Presented February 24, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

148. Regulations, approved by Order in Council ,dated the 19th day of January, 1914, for the disposal of petroleum and natural gas rights, the property of the Crown in Manitoba, Saskatchewan, Alberta, the Northwest Territories, the Yukon Territory, the Railway Belt in the Province of British Columbia, and within the tract containing three and one-half (3½) million acres of land acquired by the Dominion Government from the Province of British Columbia, and referred to in subsection (*b*) of section 3 of the Dominion Lands Act. Presented by Hon. Mr. Roche, February 23, 1914.
Not printed.

149. Regulations in regard to grazing leases of vacant Dominion lands, &c: Presented by Hon. Mr. Roche, February 23, 1914.....*Not printed.*

150. Return to an Order of the House of the 9th February, 1914, for a return showing the amounts in detail paid to Ward Fisher, of Shelburne, N.S., fishery inspector, for the years 1912 and 1913 for salary, office expenses, travelling expenses, and all other expenses. Presented February 24, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

151. Return to an Order of the House of the 2nd February, 1914, for a copy of the report of operations at the fishery hatchery at Port Daniel West, for the year 1913. Presented February 24, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

152. Return to an Order of the House of the 18th February, 1914, for a copy of all correspondence, investigations or other documents respecting the loss of a horse killed on the Intercolonial, on the 10th of September last, the property of Johnny Roy, of Amqui. Presented February 24, 1914.—*Mr. Boulay*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

153. Return to an Order of the House of the 16th February, 1914, for a return showing the increase in freight rates on live-stock, including horses, carried over the Intercolonial Railway, by the tariff effective May 1, 1913, as compared with the tariff effective April 15, 1909, for the following distances, respectively:—

Over 5 and not over 10 miles.
" 10 " " 15 "
" 15 " " 20 "
" 20 " " 25 "
" 25 " " 30 "
" 30 " " 40 "
" 40 " " 50 "
" 50 " " 60 "
" 60 " " 70 "
" 70 " " 80 "
" 80 " " 90 "
" 90 " " 100 "
" 100 " " 110 "
" 110 " " 120 "
" 120 " " 130 "
" 130 " " 140 "
" 140 " " 150 "
" 150 " " 160 "

Presented February 24, 1914.—*Mr. Kyte*.....*Not printed.*

154. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relative to the report and recommendations of the Board appointed under the Combines Investigation Act to investigate the methods adopted by the United Shoe Machinery Company. Presented February 24, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

155. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of memorandum of agreement between the Canadian Government railways and the Canadian Pacific Railway Company, covering the transportation of freight and passengers between Halifax and St. John over the Intercolonial Railway, in connection with the Canadian Pacific and Allan Line Steamships, carrying British mails, making Halifax the terminal port; also of all agreements, Orders in Council, petitions, memorials, regulations or orders of the Department of Railways and Canals, or of any officer or officers of the Intercolonial Railway; of letters or other correspondence, interviews with the Prime Minister and other member or members of the Government, and representations to the Prime Minister, or other member or members of the Government, in any manner relating to the said memorandum of agreement; and of all telegrams and letters received by the Government, or any member thereof, or sent by them, either in reply or otherwise; also of all letters, telegrams, representations or other documents relating to the said agreement or in any way connected therewith, received by F. P. Gutelius, the General Manager of the Intercolonial Railway, from the Canadian Pacific Railway, or from any corporation, persons or body, or sent by him, in reply thereto or otherwise, to the said Canadian Pacific Railway or to any other corporation, body or person. Presented February 24, 1914.—*Mr. Emmerson*..*Not printed.*

156. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all Orders in Council since the 1st of June last in any way altering the rates of duties existing under the Customs Act. Presented February 24, 1914.—*Sir Wilfrid Laurier*.....*Not printed.*

157. Correspondence, statements, &c., in respect to certain proposed advances to the Harbour Commissioners of Montreal, for expenditure during the years 1914, 1915, 1916 and 1917. Presented by Hon. Mr. Hazen, February 27, 1914.....*Not printed.*

158. Memorandum of proposed harbour improvements to be made by the Harbour Commissioners of Quebec during 1914, out of certain proposed advances to be made to the said commission. Presented by Hon. Mr. Hazen, February 27, 1914.....*Not printed.*

159. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, &c., between the Department of Trade and Commerce and any person or persons, companies or corporations, in the years 1912 and 1913, respecting a steamship service between St. John, N.B., and Bear River, N.S., and intermediate points, and the matter of the payment of a subsidy therefor. Presented March 2, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

160. Return to an Order of the House of the 2nd February, 1914, for a copy of the reports made by the proprietors of the steamer *Canada*, on which the subsidy was paid to them for the season of 1913, for the service between Campbellton, N.B., and Gaspé, Que.; together with a copy of all complaints regarding the said service and of the correspondence, reports and documents in the possession of the Department of Trade and Commerce in that connection in the said year. Presented March 2, 1914.—*Mr. Marcil (Bonaventure)*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

161. Return to an Order of the House of the 4th February, 1914, for a return showing what sum or sums of money, if any, have been expended by the Government since the 21st of September, 1911, in the County of Wright, Quebec, and how such money has been expended. Presented March 2, 1914.—*Mr. Devlin*.....*Not printed.*

162. Return to an Order of the House of the 26th February, 1914, for a return showing:—

1. How many temporary clerks were employed in the Library of Parliament during the Sessions of 1911-1912 and 1912-1913, their names and the salary paid to each for such service, and the total so paid?

2. How many temporary clerks are at present so employed, their names and salaries respectively?

3. If any temporary clerks were employed in said library, during the Session of 1910-1911; if so, how many?

4. What was the then number of permanent clerks in the library, and the present number of temporary clerks employed in said library?

5. Why temporary clerks are employed in said library in positions superior to and at higher pay than that paid to permanent clerks? Presented March 3, 1914.—*Mr. Turgeon* .....*Not printed.*

163. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence, telegrams, memoranda, Orders in Council, instructions to officers, regulations and other papers and documents relating to a change in the regulations governing the fishing of salmon in the St. John River, above tidal water. Presented March 3, 1914.—*Mr. Sinclair*.....*Not printed.*

164. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams and correspondence in any way relating to the appointment of men in any way connected with the salmon fishing pond at Margaree during the year 1913. Presented March 3, 1914.—*Mr. Chisholm (Inverness)* .....*Not printed.*

165. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received in 1912 for the construction of a breakwater at Green Point, Gloucester County, N.B., and of all correspondence, letters and telegrams showing why the contract was not awarded to lowest tenderer. Presented March 3, 1914.—*Mr. Turgeon*..*Not printed.*

166. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, &c., touching in any way the work done on Lingan Beach, South Cape Breton, under Superintendent H. D. McLean. Presented March 3, 1914.—*Mr. Carroll* .....*Not printed.*

167. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, reports, vouchers, accounts, receipts, correspondence, &c., in connection with a wharf recently constructed at Gold River, Lunenburg County, N.S. Presented March 3, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

168. Return to an Address to His Royal Highness the Governor General, of the 9th February, 1914, for a copy of all documents, Orders in Council, correspondence, telegrams, tenders, accounts, vouchers, part, &c., in connection with the construction of a bridge or work between the mainland and an island, known as Boutilier's island, at South West Cove, Lunenburg County, N.S. Presented March 3, 1914.—*Mr. Maclean (Halifax)*..*Not printed.*

169. Return to an Order of the House of the 9th February, 1914, for a copy of all advertisements, tenders, contracts, documents, letters and correspondence relating to the supply of coal for the Government public buildings at Lunenburg, N.S. Presented March 3, 1914.—*Mr. Macdonald* .....*Not printed.*

170. Return to an Order of the House of the 2nd February, 1914, for a comparative statement of the quantity of cubic yards of dredging done by the *Restigouche*, or dredge *No. 3*, on the outside bar of Bathurst Harbour, during the seasons of 1910, 1911, 1912 and 1913. Presented March 3, 1914.—*Mr. Turgeon*.....*Not printed.*

170a. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the dredging in Bathurst Harbour, and of the contract awarded. Presented March 3, 1914.—*Mr. Turgeon*.....*Not printed.*

170b. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters and telegrams relating to the deposit of sand and mud dumped into the southwestern channel by the contractors of dredging in Bathurst Harbour. Presented March 3, 1914.—*Mr. Turgeon*.....*Not printed.*

171. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all correspondence, telegrams, petitions and memorials received by the Right Honourable R. L. Borden, Premier of Canada, or the Minister of Railways and Canals, from J. A. Gillies, Esq., Sydney, N.S., or from any resident of the County of Richmond, N.S., relative to the purchasing of the Cape Breton Railway by the Government and the building of a line of railway from St. Peters to Sydney and Louisburg, and of replies thereto. Presented March 3, 1914.—*Mr. Kyte*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

172. Return to an Order of the House of the 2nd February, 1914, for a return showing:—
1. The names of all proprietors from whom land and property have been expropriated for the purpose of the Halifax Ocean Terminals between Three Mile House and the proposed site of the railway and shipping terminals?
2. The price or amount of damages paid therefor, or the amount offeerd and accepted in the case of each proprietor?
3. The amount offered or tendered each proprietor for damages and which has not been accepted.
4. The quantity of land and nature of property so expropriated from each proprietor. Presented March 3, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

172a. Return to an Order of the House of the 2nd February, 1914, for a copy of all advertisements, tenders, papers, documents, letters and correspondence relating to the construction of the railway from Three Mile House at Bedford Basin to Halifax Harbour, and also to the piers or wharfs and sea walls in connection with the proposed Halifax Ocean Terminals. Presented March 16, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

173. Return to an Order of the House of the 2nd February, 1914, for a copy of all agreements, correspondence, papers and documents referring to any arrangement made between the Intercolonial Railway of Canada and the Canadian Pacific Railway in the year 1913, relating to the hauling of Canadian Pacific Railway freight and passenger trains between St. John and Halifax, connecting with any transatlantic steamship lines at Halifax, during the winter season of 1913-14. Presented March 4, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

174. Return to an Order of the House of the 20th January, 1913, for a copy of all recommendations, correspondence, letters, telegrams and reports now on file in the Department of Justice, relating to the vacancy in the office of deputy warden of the Dorchester penitentiary, and the appointment of a successor to Mr. A. B. Pipes, who was promoted from the position of deputy warden of Dorchester penitentiary to that of warden. Presented March 4, 1914.—*Mr. Emmerson* .....*Not printed.*

175. Correspondence between the City of Ottawa and the Government, on the subject of a pure water supply for the city and Government buildings. Presented by Hon. Mr. Borden, March 4, 1914.....*Not printed.*

176. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, correspondence, telegrams and all other documents between the Department of Railways and Canals and Archer, Macdonald, E. Montpetit, C. A. Harwood, and A. Marceau, local engineer, St. Amour, Superintendent of the Canal of Soulanges, L. A. Sauvé, and others, respecting the tearing down of several houses and dependencies erected on the Government grounds at Pointe Cascades, the property of the said L. A. Sauvé. Presented March 5, 1914.—*Mr. Boyer* .....*Not printed.*

177. Return to an Order of the House of the 23rd February, 1914, for a copy of all agreements between the Transcontinental Railway Commission and the Canadian Northern Railway for the use of the line of the said company by the trains of the Transcontinental Railway from Cap Rouge to the shops at St. Malo. Presented March 5, 1914.—*Sir Wilfrid Laurier* .....*Not printed.*

178. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence between the Minister of Railways or the Transcontinental Railway Commission and the Quebec Harbour Commission, with regard to the construction by the said Harbour Commission of a line of railway to connect the said Transcontinental Railway from Champlain Market with the proposed Union Station at the Palais, and of all contracts by the said Harbour Commission towards that end. Presented March 5, 1914.—*Sir Wilfrid Laurier* .....*Not printed.*

179. Return to an Order of the House of the 9th February, 1914, for a copy of all advertisements, tenders, contracts and correspondence in connection with the proposed New London Branch of the Prince Edward Island Railway. Presented March 5, 1914.—*Mr. Graham* .....*Not printed.*

180. Return to an Order of the House of the 4th February, 1914, for a return showing the total amount of available cash on deposit to the credit of the Government of Canada on the last day of each month between April 1, 1913, and December 31, 1913. Presented March 5, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

181. Return to an Order of the House of the 4th February, 1914, for a return showing the following particulars respectively, of all loans placed or extended by the Government of Canada, upon the London market during the calendar years 1912 and 1913: Loan, date and copy of prospectus; price in prospectus and price realized; date on which loan matures; rate per cent; total issue; amount realized; charges including discount for immediate payments, &c.; net amount of cash realized; and the annual effective rate of interest per unit. Presented March 5, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

182. Return to an Order of the House of the 9th February, 1914, for a return showing the number of farm labourers and public servants respectively, placed by the Government employment agents during the years 1912 and 1913; also the counties where placed and amount of bonus paid. Presented March 6, 1914.—*Mr. Sutherland*.....*Not printed.*

183. Return to an Order of the House of the 26th February, 1914, for a return showing:—
1. What chartered banks in Canada have gone into liquidation since Confederation, and at what date in each case;
2. The loss in each case to the depositors, the note holders and the stockholders respectively;
3. What relief, if any, was given in each case by the Government to any of the parties suffering loss. Presented March 6, 1914.—*Mr. Neely*.....*Not printed.*

184. Return to an Order of the House of the 11th February, 1914, for a return showing the number of binders, reapers, mowers, ploughs, seeders, and cultivators exported from and imported to Canada, with their value respectively, in each of the years 1910, 1911, 1912 and 1913. Presented March 6, 1914.—*Mr. Neely*.....*Not printed.*

185. Return to an Order of the House of the 23rd February, 1914, for a return showing the number of cattle exported from Canada to the United States in the months of October, November and December, 1913, and January, 1914, and for the corresponding months in 1912 and 1913. Presented March 6, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

186. Return to an Order of the House of the 23rd February, 1914, for a return showing the quantities and varieties of fish exported from Canada to the United States in the months of October, November and December, 1913, and January, 1914, and for the corresponding months in 1912 and 1913. Presented March 6, 1914.—*Mr. Maclean (Halifax)*. *Not printed.*

187. Return to an Order of the House of the 26th February, 1914, for a return showing:—
1. Who were, from incorporation, and who are, the officers and directors of the Grand Trunk Pacific Railway Company;
2. The amount of capital stock of said company, the amount paid up, and who are the holders of such paid up stock, and the amount held, and still held, by each;
3. If this company, or a subsidiary company, has contracted to build any portion of the National Transcontinental Railway; and, if so, the total amount of their contracts for such work;
4. What portion of such contracts or work was sublet, and on such sublet contracts what profit was made by the said company. Presented March 6, 1914.—*Mr. Middlebro.* *Not printed.*

188. Report of the Board of Inquiry appointed to investigate and verify the claims of applicants for Fenian Raid Volunteer Bounty in the Province of Nova Scotia. Presented by Hon. Mr. Hughes, March 9, 1914.....*Not printed.*

188*a*. List of applicants, in Nova Scotia, for the Fenian Raid Volunteer Bounty whose claims have been approved.—List of Fenian Raid Volunteer Bounty applicants, in Nova Scotia, received to December 31, 1913, but not yet considered. Presented by Hon. Mr. Hughes, March 9, 1914.....*Not printed*

189. Return to an Order of the House of the 12th February, 1914, for a return showing what was the local minimum rate of freight on small parcels on the Intercolonial Railway prior to October 10, 1911, and also the present rate on the same. Presented March 9, 1914.—*Mr. Sinclair*.....*Not printed.*

190. Return to an Order of the House for a copy of all correspondence, reports, evidence taken, and of all other papers in the possession of the Minister of Railways and Canals, relating to the investigation recently held by Mr. Ferguson, M.L.A., concerning the affairs of the Trent Valley Canal. Presented March 9, 1914.—*Mr. Burnham.*
Report only printed for distribution and sessional papers.

191. Return to an Order of the House of the 16th February, 1914, for a copy of all papers necessary to convey full information as to the charter, outfit and instructions of the *Karluk* and auxiliary vessels; the names, rank, pay and terms of engagement of their officers and crews; and of all communications received from Mr. V. Steffansson, or any other person who has received such a communication, written after the expedition sailed for the Arctic Ocean. Presented March 10, 1914.—*Mr. Oliver*.....*Not printed.*

192. Return to an Order of the House of the 2nd February, 1914, for a return showing the number of towns in the Province of Ontario which have a population larger than the town of Chesley, South Riding of Bruce, which was 1,734, according to the last census; also the number of such towns served by letter boxes on the street. Presented March 10, 1914.—*Mr. McCraney*.....*Not printed*

193. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the promoters of the National Drop Forge Company, Limited, and the powers asked by and given to said company by letters patent. Presented March 10, 1914.—*Mr. Lemieux*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

194. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the promoters of the Canadian Contracting Company, and the powers asked by and given to said company by letters patent. Presented March 10, 1914.—*Mr. Lemieux* .....*Not printed.*

195. Return to an Order of the House of the 4th February, 1914, for a copy of all papers, letters, telegrams, reports, inquiries and documents or other communications had with any of the Departments of the Government, particularly with the Interior, Customs and Marine and Fisheries Departments, relating to Gustavas A. Colpitts, a Canadian citizen returning as a passenger on the Royal Mail Steamship *Empress of Britain*, in September, 1911, who alleged that he was not allowed by officers of the Government to disembark at Rimouski from said steamship. Also a copy of all letters, correspondence or other communications received by any members of the Government, particularly by the Minister of Marine and Fisheries, and by any Department of the Government, from the said Gustavas A. Colpitts, who was at the time a student at Mount Allison University, Sackville, New Brunswick, and of all letters or other communications sent in reply thereto. Presented March 10, 1914.—*Mr. Emmerson*.....*Not printed.*

196. Number of Chinamen entering Canada during years 1911-12-13, &c.—(*Senate.*). *Not printed.*

197. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers, plans, correspondence, memoranda and other documents relative to the shortening of distances on the Intercolonial Railway between Pictou and Port Mulgrave, and to the construction of a new bridge at Pictou in connection therewith. Presented March 12, 1914.—*Mr. Macdonald*.....*Not printed.*

198. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, telegrams, correspondence, leases and other documents relating to the cutting of lumber by Mr. B. F. Smith from the so-called Tobique Indian reserve, in the Province of New Brunswick, and of all recommendations with reference thereto, made by the Indian agent for that portion of the Province, or any other official of the Department in the said Province; together with a statement of the lumber cut by said Smith from said reserve, with the rates of stumpage charged and amounts paid since January 1, 1912. Presented March 12, 1914.—*Mr. Carvell*.....*Not printed.*

198*a*. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence, letters, telegrams, memorials, petitions, &c., relating to the sale or transfer of the Indian reserve at Sydney, N.S., and the removal of the Indians therefrom. Presented March 17, 1914.—*Mr. Kyte*.....*Not printed.*

198*b*. Return to an Order of the House of the 23rd March, 1914, for a copy of all the instructions issued to C. P. Fullerton and Fawcett Taylor, or either of them, in reference to the St. Peter's Indian reserve. Presented April 8, 1914.—*Mr. Oliver*.....*Not printed.*

199. Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams and other documents relative to the purchase for the Intercolonial Railway of a quantity of coal in the United States, within the past few months. Presented March 12, 1914.—*Mr. Macdonald* .....*Not printed.*

199*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing:—

1. When the Intercolonial Railway and the Prince Edward Island Railway last called for tenders for its coal supply, and when the tenders were returnable?
2. The number of tenders received, the names of the tenderers, and their respective prices?
3. The date of the last contract or contracts for coal for the Intercolonial Railway, and who was the contractor or contractors respectively?
4. The names of the successful tenderers, as the result of the last call for tenders, and their prices respectively?
5. The amount in tons of the contract made with each, and at what prices per ton respectively?
6. If any coal was purchased for the Government system of railways in the United States since March 31, 1913? If so, by whom, from whom, and through whom it was purchased, and at what price, the cost per ton delivered, inclusive of commissions to the railways. Presented March 18, 1914.—*Mr. Emmerson*.....*Not printed.*

199*b*. Return to an Order of the House for a return showing whether the Government has purchased any coal, freight or passenger cars during the past six months for the Intercolonial Railway; if so, from whom and in what quantity; the price paid in each case; if any tenders were called for the same; who the tenderers were and the amount of each tender. Presented April 6, 1914.—*Mr. Macdonald*.....*Not printed.*

200. Return to an Order of the House of the 4th March, 1914, for a return showing the freight rates on flour, hay, oats, lumber and firewood per 100 lbs. or per ton, between Bathurst, N.B., and Nepisiguit Junction, Red Pine, Bartibogue, Beaver Brook, and between Bathurst, Berresford, Petit Rocher and Belledune, before the changes made in August, 1913, and the freight rates on the same articles, between the same points, under the new schedule of rates. Presented March 16, 1914.—*Mr. Turgeon*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

201. Return to an Order of the House of the 11th February, 1914, for a copy of all contracts, accounts, bills, memoranda, letters, correspondence, receipts, vouchers, bills of lading, &c., referring to all materials, provisions, supplies and goods of every description purchased and forwarded to Port Nelson during the year 1913, by any Department of the Government of Canada, and agreements for employment of workmen in connection with the construction of the Hudson Bay Railway terminals at Port Nelson. Presented March 18, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

202. Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances, in any Department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S. Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all moneys paid for charges and expenses in connection with such purchase or the procuring of a deed of said property? Presented March 16, 1914.—*Mr. Emmerson.* *Not printed.*

202*a*. Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances in any department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S. Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all monies paid for charges and expenses in connection with such purchase or the procuring of a deed of said property. Presented March 26, 1914.—*Mr. Emmerson* ..... *Not printed.*

202*b*. Further Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances in any department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all monies paid for charges and expenses in connection with such purchase or the procuring of a deed of said property. Presented April 1, 1914.—*Mr. Emmerson* ..... *Not printed.*

203. Return to an Order of the House of the 4th March, 1914, for a return showing the freight rates under the old tariff of the Intercolonial Railway, per 100 lbs. or per ton, on fresh, dried and cured fish, molasses, coal oil, nails, hardware and anthracite coal from Gloucester Junction and Bathurst station to and from St. John, and the present rates for the same articles between the same points. Presented March 17, 1914.—*Mr. Turgeon.* *Not printed.*

204. Return to an Order of the House of the 23rd February, 1914, for a return showing all smelt fishing licenses issued in the County of Pictou during the past season, and of all correspondence in reference to the same. Presented March 17, 1914.—*Mr. Macdonald.* *Not printed.*

204*a*. Supplementary Return to an Order of the House of the 23rd February, 1914, for a return showing all smelt fishing licenses issued in the County of Pictou during the past season, and of all correspondence in reference to the same. Presented April 17, 1914.—*Mr. Macdonald* ..... *Not printed.*

205. Return to an Order of the House of the 2nd February, 1914, for a copy of all documents concerning the latest changes in the lobster fishing regulations at Magdalen Islands. Presented March 17, 1914.—*Mr. Lemieux*..... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

206. Return to an Order of the House of the 16th February, 1914, for a copy of all correspondence, telegrams, tenders and documents connected in any way with the supplying of coal to the lobster hatchery at Margaree during the years 1910-1911, 1911-1912, 1912-1913 and 1913-1914. Presented March 17, 1914.—*Mr. Chisholm (Antigonish).*
Not printed.

207. Return to an Order of the House of the 16th February, 1914, for a copy of the charges made against Mrs. Marguerite Fair, postmistress of Black Cape, Quebec, on which Mr. Louis Taché of Rimouski, was authorized to hold an investigation, together with the appeal of said investigation, if any was held. Presented March 17, 1914.—*Mr. Marcil (Bonaventure)* ..... *Not printed.*

208. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, papers, documents, reports, &c., in connection with the proposed increase of mail service from Shelburne, N.S., to Jordan Bay and Jordan Ferry and return since October 1, 1911. Presented March 17, 1914.—*Mr. Maclean (Halifax)*..... *Not printed.*

209. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence between the Post Office Department, or any official thereof, and any person or persons, concerning the installation of street letter boxes in the village of Chesley, in the riding of South Bruce. Presented March 17, 1912.—*Mr. Graham....Not printed.*

210. Report of the Commission of Conservation of Canada on the Trent Watershed Survey, a reconnaissance by C. D. Howe, Ph.D., and J. H. White, B.A., B.Sc. F., with an introductory discussion by B E. Fernow, LL.D Presented by Hon. Mr. Borden, March 19, 1914 ..... *Not printed.*

210a. Conservation of coal in Canada. Report of Commission of Conservation.—(*Senate*).
Not printed.

211. Copy of evidence taken before Mr. William Henry Moore, the commissioner appointed to inquire into certain charges against Mr. Frank Fairen, store keeper on the Trent Canal, sentation in the Senate, of the Western provinces of Canada. Presented by Hon. Mr. March 19, 1914 ..... *Not printed.*

212. Copy of the opinion of the Deputy Minister of Justice on the subject of increased representation in the Senate, of ahe Western provinces of Canada. Presented by Hon. Mr. Borden, March 19, 1914 ..... *Not printed.*

212a. Copy of a resolution of the Legislative Assembly of the Province of British Columbia, approved by His Honour the Lieutenant Governor in Council, in which application is made to the Federal Government to increase the number of senators for the said province. Presented by Hon. Mr. Borden, March 19, 1914..... *Not printed.*

212b. Copy of opinion of the Assistant Deputy Minister of Justice on the subject of increased representation in the Senate, of the prairie provinces of Canada. Presented by Hon. Mr. Borden, March 23, 1914..... *Not printed.*

213. Return to an Order of the House of the 9th March, 1914, for a copy of all papers and correspondence in the Department of Customs regarding the entry of a boring mill at Lethbridge, Alberta, shipped in August, 1913, by John Stirk and Company, and billed to the Lethbridge Iron Works. Presented March 20, 1914.—*Mr. Buchanan* .
Not printed.

214. Return to an Order of the House of the 16th March, 1914, for a copy of a petition dated the 9th of July, 1911, signed by Etienne Barre, Joseph Trudeau and others, taxpayers of the municipality of Chambly Basin, and addressed to the Minister of Justice, together with a copy of all documents and vouchers attached to said petition, and of all correspondence and other documents relating thereto. Presented March 23, 1914.—*Mr. Lamarche* ..... *Not printed.*

215. Return to an Order of the House of the 2nd February, 1914, for a return showing where the D.G. cruiser *Margaret* was built; the names of the builders; the contract price; whether the contract was awarded to the lowest tenderer; the name and address of each tenderer and amount of each tender; if the Government or any department thereof has contracted for any other vessel or vessels during the past eighteen months; and if so, the number of such vessels, the names and addresses of the contractors, the gross tonnage of each and the contract price, and the service for which they were intended. Presented March 23, 1914.—*Mr. Sinclair*..... *Not printed.*

216. Return to an Order of the House of the 2nd March, 1914, for a copy of all letters, telegrams or other correspondence in connection with the seizure of eleven (11) horses belonging to Mr. John M. Ferguson, Kaleida, Manitoba, on or about the 28th day of March, 1912. Presented March 24, 1914.—*Mr. Turriff*..... *Not printed.*

217. Return to an Order of the House of the 4th February, 1914, for a return showing the quantities and values of potatoes imported monthly into Canada during the years 1911, 1912 and 1913, and the countries from which such potatoes were imported. Presented March 25, 1914.—*Mr. Hughes (Kings, P.E.I.)*..... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

217a. Return to an Order of the House of the 2nd February, 1914, for a return showing the quantities and values of potatoes exported monthly from each province of Canada, from September 1, 1911, to January 1, 1914, and the countries to which the same were exported. Presented March 25, 1914.—*Mr. Carvell* .....*Not printed.*

218. Return to an Order of the House of the 12th March, 1914, for a return showing how many colonels, honorary colonels, lieut.-colonels, honorary lieut.-colonels, and other officers, honorary and otherwise, have been appointed by the Minister of Militia and Defence from October, 1911, to the present time. Presented March 25, 1914.—*Mr. Hughes (Kings, P.E.I.)*.....*Not printed.*

218a. Return to an Order of the House of the 11th February, 1914, for a return showing the number of honourary appointments to military rank which have been made by, or with the approval of, the present Minister of Militia and Defence since he assumed office, giving the names of the persons so appointed, and the rank of each. Presented April 1, 1914.—*Mr. Murphy* .....*Not printed.*

219. Kitsilano Indian reserve—relating to the purchase of by the Government of the Dominion of Canada from the Province of British Columbia.—(*Senate*).....*Not printed.*

220. Return to an Address to His Royal Highness the Governor General of the 9th March, 1914, for a copy of all papers, documents, Orders in Council, correspondence, &c., in reference to the suspension of Mr. Joseph McGillis of the Department of Customs, Ottawa. Presented March 27, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

221. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all parties who have been employed at the Experimental Farm at Ste. Anne de la Pocatière during the years 1912 and 1913, and the salary and fees paid to each of them. Presented March 30, 1914.—*Mr. Lapointe (Kamouraska)*.....*Not printed.*

222. Return to an Order of the House of the 9th February, 1914, for a return showing the total number of veterinary inspectors employed by the Government in the slaughter houses of the country; how they are distributed in each Province; the names of the establishments they are connected with, and the number of officers in each of them; if the Government employ some others to supervise the health of the herds on the farms besides the veterinary inspectors connected with the slaughter houses; the number of them, and how they are distributed in each Province; the number of herds of both cattle and hogs that have been submitted to inspection during the years 1911, 1912 and 1913; the number of animals in each Province slaughtered after tuberculosis was found in them; if the Government paid indemnities to the owners on account of such slaughtering, and if so, the amount in each Province; the respective salaries of the veterinary inspectors employed in the slaughter houses; the working hours of those officers; the respective salaries paid to the veterinary inspectors employed for other purposes; the amount of the expenses of that branch of the Department of Agriculture for the years 1911, 1912 and 1913 for internal managmeent, such as salaries, and the salaries and expenses for each of the Provinces. Presented March 30, 1914.—*Mr. Boyer.* *Not printed.*

223. Return to an Order of the House of the 23rd February, 1914, for a copy of the report of George Lafontaine, received by the Department of Agriculture during the present fiscal year, relating to the manufacture of chemical manure. Presented March 30, 1914.—*Mr. Boulay* .....*Not printed.*

224. Return to an Order of the House of the 16th February, 1914, for a return showing.—

1. Whether the Postmaster General has given a contract for rural parcel boxes; and, if so, to whom?
2. Whether tenders for the boxes were asked?
3. From whom tenders were received?
4. The price, if any, of the different tenders?
5. How many boxes were ordered, and at what price?
6. Whether the Postmaster General, since he came into office, has made a contract for rural mail boxes, and, if so, when?
7. The amount of the contract?
8. Who the tenderers were, and the price, if any, of the different tenders?
9. Who received the contract, and the price paid per box?
10. How many boxes, if any, were ordered? Presented March 31, 1914.—*Mr. Nesbitt* .....*Not printed.*

225. Return to an Order of the House of the 23rd March, 1914, for a return showing the rates of interest paid on all Dominion loans from 1890 to 1914. Presented March 31, 1914.—*Mr. Pardee*.....*Not printed.*

226. Return to an Address to His Royal Highness the Governor General, of the 9th March, 1914, for a copy of all correspondence since October, 1911, between the Government of Canada, represented by the Department of Marine and Fisheries, of the one part, and the Goverment of the United Kingdom, the Government of the United States, or any other Government, of the other part, relating to steam trawling in Atlantic waters. Presented March 31, 1914.—*Mr. Sinclair*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

227. Return to an Order of the House of the 11th February, 1914, for a copy of all letters, telegrams, and written requests during the years 1912 and 1913, addressed to the Department of Marine and Fisheries, or the Department of Naval Affairs, or any officer of either Department, or Marine branches of said department, or any officer or persons of either branch, by any person or persons, relating to proposals or requests that the vessels or any vessel under the control of the Naval Branch of said Department, should be present at any regatta or celebration of any description held anywhere on the Atlantic or Pacific Coasts of Canada during said years; also of all replies to such letters, telegrams and written requests. Presented March 31, 1914.—*Mr. Law* .....*Not printed.*

228. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, memoranda and other documents relating to the moral, mental and physical inspection of all immigrants entering Canada. Presented April 1, 1914.—*Mr. Paquet.* *Not printed.*

229. Return to an Order of the House of the 16th March, 1914, for a copy of all orders, reports, applications, letters, telegrams and other documents connected with or in any manner relating to the retirement of Amasa E. Killam, an official of the Intercolonial Railway, from the employment of the said railway, and to his claim for a retiring allowance, under the provisions of the Intercolonial and Prince Edward Island Railway Employees' Provident Fund Act; and also of all letters showing the date of his beginning work in the service of the said railway and of his appointment to a position in the employ of said railway on the first of April, 1897, or at any other date. Also a copy of all instructions and letters from the then Minister of Railways to the general manager or to any other official of the Intercolonial, relating to engagement or employment of the said Amasa E. Killam, and of all letters, correspondence, instructions, reports, or other documents in any way relating thereto and to the engagement of the said Amasa E. Killam, during the month of March, 1897, to take the position of bridge and building inspector on the Intercolonial Railway, to commence work on the first day of April, 1897. Presented April 1, 1914.—*Mr. Emmerson...Not printed.*

230. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers and other documents relating to the payments made at Skinners Cove, Pictou County, for purchase of land or other rights in the year 1913. Presented April 2, 1914.—*Mr. Macdonald* .....*Not printed.*

231. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay rolls, accounts and vouchers in any way referring to the expenditure of money by this Government for the public wharf at Whycocomagh. Presented April 2, 1914.—*Mr. Maclean (Halifax).....Not printed.*

231*a*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, reports, vouchers, accounts, receipts, correspondence, &c., in connection with the construction of a wharf at Feltzen South, Lunenburg County, N.S., now under construction or recently completed. Presented April 2, 1914.—*Mr. Chisholm (Inverness).....Not printed.*

231*b*. Return to an Order of the House of the 4th March, 1914, for a return showing:—

1. How much money was expended on the repairs to the wharf at South Gut, Victoria County, during the summer of 1913?
2. How much on labour and how much on material, respectively?
3. Who was the foreman, by whom recommended, and his rate of wages per day?
4. How many days he was employed as foreman?
5. How many men he had working for him on the wharf each day, and the wages paid each man?
6. How much was paid for material for the repairs, and where it was obtained?
7. From whom the material was purchased, the nature of it, and the price paid per foot?
8. Who was the paymaster on this work and when the men were paid? Presented April 2, 1914.—*Mr. McKenzie*.....*Not printed.*

231*c*. Return to an Order of the House of the 9th February, 1914, for a return showing the amount expended by the Government on wharfs, breakwaters, public works and dredging in the County of Yarmouth since October 11, 1911; and to whom the amounts so expended were paid. Presented April 2, 1914.—*Mr. Law....Not printed.*

231*d*. Return to an Order of the House of the 4th March, 1914, for a return showing:—

1. How much money was expended on repairs to the Englishtown wharf, County of Victoria, in the summer of 1913?
2. How much on labour and how much on material, respectively?
3. Who was the foreman, by whom he was recommended, and his rate of wages per day?
4. How many days he was employed as foreman?
5. How many men he had working for him on the wharf each day, and the wages paid each man?

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6. From whom the material was purchased, of what it consisted, and the price paid per foot?

7. Who was the paymaster on this work, and when the men were paid?

8. When the work was begun and when completed? Presented April 2, 1914.—*Mr. McKenzie* ..... *Not printed.*

231e. Return to an Order of the House of the 16th February, 1913, for a copy of all letters, telegrams, correspondence, pay-rolls, vouchers and documents of all kinds connected in any way with repairs or extension of wharf at Finlay Point, Mabou, Inverness County, during the year 1910-1911. Presented April 2, 1914.—*Mr. Chisholm (Inverness)* ..... *Not printed.*

231f. Return to an Order of the House of the 4th March, 1914, for a return showing the amount of timber used and the price paid for same in renewing and repairing the wharf at Port Clyde, Shelbourne County, N.S.; the amount of wages paid on same, and to whom; and the number and price of ballast poles used in the above work. Presented April 2, 1914.—*Mr. Law*..... *Not printed.*

231g. Return to an Order of the House of the 12th May, 1913, for a copy of all papers, telegrams, documents, reports, correspondence, &c., in any way relating to a proposed extension of a wharf or the construction of a new wharf at Finlay Point, Inverness County, N.S. Presented April 2, 1914.—*Mr. Chisholm (Inverness)*..... *Not printed.*

231h. Return to an Order of the House of the 26th May, 1913, for a copy of all papers, letters and documents relating to the building of a wharf in the town of L'Assomption. Presented April 2, 1914.—*Mr. Seguin* ..... *Not printed.*

231i. Return to an Address of the 19th May, 1913, to His Excellency the Administrator for a copy of all papers, tenders, contracts, accounts, and Orders in Council, between the Department of Public Works and any other person or persons, relating to the purchase of a site for the public wharf being erected or recently erected at Bear River, N.S., and also relating to the construction of said wharf, and anything in connection therewith. Presented April 2, 1914.—*Mr. Maclean (Halifax)*..... *Not printed.*

231j. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, documents, correspondence, &c., relating to the purchase of a property at Centreville, Shelburne County, Nova Scotia, as a site for a public wharf, and in connection with any monies expended on the McGray property at Centreville, upon the public wharf. Presented April 2, 1914.—*Mr. Kyte*..... *Not printed.*

231k. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st of September, 1911, to date. Presented April 16, 1914.—*Mr. Fortier*..... *Not printed.*

231l. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, petitions, memorials, letters, reports, and telegrams, in the Department of Public Works, or in any of the Departments of the Government, relating to a proposed wharf or breakwater at Little Cape, and Great Shemogue Harbour, Westmorland County, N.B.; also of all correspondence, letters and telegrams exchanged between any member of the Government and M. G. Siddal, or any other persons or corporations, relating to a proposal or application to construct a wharf or breakwater at Little Cape or Great Shemogue Harbour in Westmorland County, N.B., or in connection with having a survey made in connection with any such proposal. Presented April 17, 1914.—*Mr. Emmerson* ..... *Not printed.*

231m. Return to an Order of the House of the 9th February, 1914, for a copy of all reports, memoranda, correspondence and documents of every nature, relating to the construction of a wharf in the town of L'Assomption, and of all petitions and correspondence in favour or against such construction to date, and the reasons why the construction of such wharf, authorized in the estimates of 1911-1912, has not been proceeded with. Presented April 17, 1914.—*Mr. Seguin*..... *Not printed.*

231n. Return to an Order of the House of the 16th March, 1914, for a copy of all accounts, vouchers, pay-rolls, instructions, correspondence and recommendations relating to the expenditure on the public wharf at Arichat, N.S., since the 11th day of October, 1911. Presented April 30, 1914.—*Mr. Kyte*..... *Not printed.*

231o. Return to an Order of the House of the 16th February, 1914, for a copy of all tenders, contracts, memorandums, pay-rolls, accounts, vouchers, correspondence, papers and documents, &c., in connection with work performed upon the Government wharf at Croft's Cove, Lunenburg County, in 1912. Presented April 30, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

231p. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents relating to the claim of the Bonaventure and Gloucester Interprovincial Company, Limited, in connection with a wharf on Bonaventure river, Bonaventure County. Presented April 30, 1914.—*Mr. Sevigny.* *Not printed.*

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231*q*. Supplementary Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st September, 1911, to date. Presented April 30, 1914.—*Mr. Fortier*.....*Not printed.*

231*r*. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders, contracts, pay rolls, vouchers, documents, correspondence, &c., in connection with the purchase of a site for the Government wharf at Bear River, N.S., and the construction of the said wharf. Presented April 30, 1914.—*Mr. Maclean (Halifax)*..*Not printed.*

231*s*. Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How much was spent upon Hall's Harbour wharf, Kings County, N.S., in 1913?

2. The name of the commissioner or foreman, by whom he was recommended, and his remuneration?

3. How much lumber was used upon the said wharf during 1913, from whom the same was purchased, and the price paid for the various forms thereof. Presented April 30, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

231*t*. Return to an Order of the House of the 16th February, 1914, for a copy of the pay-list, including the names and residences, of all those who have worked at the wharf of L'Ile Verte, County of Témiscouata; the number of days of employment of each of them: the amount received by each of them; who has or have signed the receipt or receipts for said amounts, in connection with the works which have been going on during the summer of 1912 and during the summer of 1913. Presented April 30, 1914.—*Mr. Gauvreau* .....*Not printed.*

231*u*. Return to an Order of the House of the 16th February, 1914, for a copy of the pay-list, including the names and residences, of the men who have worked on the wharf to the west of Rivière-Verte, Témiscouata; the number of days' work of each of them; the amount of money received by each of them; who has or have signed the receipt or receipts for said amounts on said pay-list or otherwise, the whole for: (1o) 1912; (2o) 1913. Presented May 4, 1914.—*Mr. Gauvreau*.....*Not printed.*

231*v*. Further Supplementary Return to an Order of the House of the 9th Mrach, 1914, for a copy of all correspondence letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st of September, 1911, to date. Presented May 4, 1914.—*Mr. Fortier* .....*Not printed.*

231*w*. Return to an Order of the House of the 30th March, 1914, for a copy of all letters and telegrams addressed by G. A. R. Rowlings and J. S. Wells to the Department of Public Works, or the Minister, since October 1, 1911, relating to the construction of a public wharf at Cole Harbour, Guysborough County, N.S., and of all replies thereto. Presented May 12, 1914.—*Mr. Sinclair*.....*Not printed.*

231*x*. Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams and correspondence of all kinds in any way relating to repairs required on the pier at Margaree Harbour, Inverness County, received in 1912-1913 and 1913-1914. Presented May 12, 1914.—*Mr. Chisholm (Inverness)* .....*Not printed.*

231*y*. Return to an Order of the House of the 27th April, 1914, for a copy of all correspondence, pay-rolls, accounts, receipts, vouchers and papers relating to the construction of Feltzen South wharf, Lunenburg County, N.S. Presented May 16, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

231*z*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay-rolls, accounts and vouchers in any way referring to the expenditure of money by this Government for the building and repair of the public wharf at Port Hood. Presented May 16, 1914.—*Mr. Chisholm (Inverness)* *Not printed.*

231 (2*a*). Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence, telegrams, complaints, pay-rolls, vouchers and all other documents in any way connected with the expenditure of $500 during the year 1913 on Finlay Point wharf, Inverness County. Presented May 16, 1914.—*Mr. Chisholm (Inverness)*..*Not printed.*

231 (2*b*). Return to an Order of the House of the 6th April, 1914, for a copy of all correspondence, letters, telegrams, petitions and recommendations relating to the wharf at Arichat, N.S., to be used by SS. *Magdalin*. Presented May 29, 1914.—*Mr. Kyte*....*Not printed.*

231 (2*c*). Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How much money was spent upon Kingsport Pier, Kings County, N.S., during the year 1913?

2. The name of the foreman or commissioner, by whom he was recommended, and the remuneration paid him?

3. How much lumber was purchased and used for said pier, from whom it was purchased, and the particulars of the prices paid therefor?

4. What was done with the lumber or piling taken out of said pier, and if the same was sold, to whom and at what price? Presented May 29, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

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231 (2*d*). Return to an Order of the House of the 27th April, 1914, for a copy of all correspondence, pay-rolls, accounts, receipts, vouchers and papers relating to the construction of Kraut Point wharf, Lunenburg County, N.S. Presented June 12, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

232. Return to an Order of the House of the 4th March, 1914, for a return showing:—

1. How much money has been expended in public works in the Counties of Rimouski and Gaspé, respectively, since October 11, 1911.

2. How much of the money so expended was provided for in the estimates of 1911-1912?

3. What amount was expended on the works for which money was not included in the estimates of 1911-1912? Presented April 2, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

232*a*. Return to an Order of the House of the 23rd February, 1914, for a return showing how much money has been expended on public works in Antigonish County since October 11, 1911.

2. How much of the amount so expended was provided in the estimates for 1911-1912?

3. What amount, not included in the estimates for 1911-1912, was expended on public works in said county? Presented April 2, 1914.—*Mr. Chisholm (Antigonish).*

232*b*. Return to an Order of the House of the 9th February, 1914, for a copy of all papers, reports, documents, correspondence, plans, &c., in reference to a proposed Government public building at Bear River, N.S., and the purchase of a site for the same. Presented April 2, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

232*c*. Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, pay-rolls, telegrams and other documents relating in any way to the expenditure of money on the harbour improvements at Mabou Harbour by the Department of Public Works, during the years 1911-12, 1912-13. Presented April 2, 1914.—*Mr. Chisholm (Inverness)* ..... *Not printed.*

232*d*. Return to an Order of the House of the 28th May, 1913, was issued to the proper officer for a copy of the specifications and tenders for materials to be used in connection with the proposed dry dock at Lauzon, Quebec. Presented April 2, 1914.—*Mr. Lemieux.* *Not printed.*

232*e*. Return to an Order of the House of the 3rd March, 1913, for a copy of all documents, letters, reports of engineers and statements of detailed expenditure in connection with dredging at Bonaventure River, Quebec. Presented April 2, 1914.—*Mr. Marcil (Bonaventure)* ..... *Not printed.*

232*f*. Return to an Order of the House of the 3rd March, 1913, for a copy of all petitions, correspondence, reports or other papers or documents in the Department of Public Works relating to the building of a breakwater at Goulman's Point, Half Island Cove, Guysboro' County, N.S. Presented April 2, 1914.—*Mr. Sinclair*..... *Not printed.*

232*g*. Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams, correspondence and documents of all kinds in any way relating to a lighthouse to be built at Red Cape, Margaree Harbour, Inverness County. Presented April 7, 1914.—*Mr. Chisholm (Inverness)* ..... *Not printed.*

232*h*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, documents, telegrams, correspondence, &c., in reference to the purchase of a site in Saskatoon for a post office building. Presented April 16, 1914.—*Mr. McCraney.* *Not printed.*

232*i*. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, reports, petitions and documents exchanged by and with the Department of Public Works since the 1st of September, 1911, to date, with the reasons why the construction of the public building, authorized in the town of St. Lin Des Laurentides, County of L'Assomption, as per the estimates of 1911-1912, has not been proceeded with. Presented April 17, 1914.—*Mr. Seguin* ..... *Not printed.*

232*j*. Return to an Order of the House of the 2nd February, 1914, for all correspondence, reports and documents exchanged by and with the Department of Public Works from October, 1911, to date, regarding the non-erection of the public building authorized to be erected at New Carlisle, the county seat of Bonaventure County, in the estimates of 1911-1912. Presented April 17, 1914.—*Mr. Marcil (Bonaventure)*..... *Not printed.*

232*k*. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all persons who worked on Lingan Bar, South Cape Breton, under Superintendent H. D. McLean, the wages paid to each per diem, the amount paid each or payable to each, and showing generally how the amount voted for such work was expended, and the amount received by H. D. McLean in connection with said work. Presented April 17, 1914.—*Mr. Carroll* ..... *Not printed.*

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232*l*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, contracts, papers, telegrams, correspondence, returns, reports, accounts, vouchers, receipts, &c., in connection with any dredging performed by the Nova Scotia Dredging Company, or any other company, corporation or individuals, at Jeddore, Halifax County, N.S., in the years 1912 and 1913. Presented April 17, 1914. —*Mr. Maclean (Halifax)*.....*Not printed.*

232*m*. Return to an Order of the House of the 12th May, 1913, for a copy of all papers, telegrams, documents, reports, correspondence, pay-rolls, &c., in any way relating to a life-saving station which was constructed at Cheticamp, during 1912. Presented April 28, 1914.—*Mr. Chisholm (Inverness)*.....*Not printed.*

232*n*. Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. What firms or persons are or have been engaged in dredging for the Government in the harbour of St. John and upon the St. John river and its tributaries since October 1, 1911.

2. What amount has been paid to each firm or person for this work from October 1, 1911, to the present time?

3. Who are the officers, president, manager and secretary of each of these corporations? Presented April 30, 1914.—*Mr. Carvell*.....*Not printed.*

232*o*. Return to an Order of the House of the 16th February, 1914, for a copy of all documents bearing on the repairing and improvement of the Metapedia Road in the Counties of Rimouski and Bonaventure. Presented April 30, 1914.—*Mr. Marcil (Bonaventure)*. *Not printed.*

232*p*. Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. What tug boats, steam or gasoline tenders, have been employed by the Government since September 21, 1911, in connection with the dredging operations in St. John harbour and in the River St. John and its tributaries?

2. Who are the registered owners of these boats and from whom each is hired?

3. The sum paid per day for each tug boat or tender and how many days each has worked in the period referred to.

4. What amount of money has been paid for the service of each boat in the period referred to and to whom it has been paid. Presented April 30, 1914.—*Mr. Carvell.* *Not printed.*

232*q*. Return to an Order of the House of the 9th March, 1914, for a return showing the details as to the nature of the work concerning the damming of the Chateauguay river, the number of men employed, their names, the wages paid in each case and the period of their employment during the calendar year 1913. Presented April 30, 1914.—*Mr. Lemieux*.....*Not printed.*

232*r*. Return to an Order of the House of the 16th March, 1914, for a copy of all letters, telegrams, correspondence, reports, petitions, and communications filed in the Department of Public Works since 1910, relating to the dredging of Antigonish harbour, or the straightening or widening of the channel, or other improvements proposed to be made there. Presented April 30, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

232*s*. Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, papers and other documents relative to the purchase of a lot of land in the town of Stellarton, for a public building. Presented April 30, 1914.—*Mr. Macdonald*.....*Not printed.*

232*t*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay-rolls, accounts, and vouchers in any way referring to the expenditure of money by this Government in the construction of the new telegraph or telephone line from Baddeck, Victoria County, N.S. ,to North East Margaree, Inverness County, N.S., thence to Big Intervale, Inverness County, N.S., and also in connection with the lines from South West Margaree to Loch Ban, and from Scotsville to Whycocomagh, all in Inverness County, N.S. Presented May 4, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

232*u*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, documents, telegrams, correspondence, &c., in reference to the purchase of a property or site on Gottingen street, Halifax, for the erection of a post office building. Presented May 4, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

232*v*. Return to an Order of the House of the 16th March, 1914, for a return showing all payments made in the year 1913 in connection with repairs done to, or moneys expended on, the Blue Rock breakwater in Antigonish County, with the names of the persons to whom such payments were made, the amount paid to each, and what such amounts were for. Presented May 4, 1914.—*Mr. Chisholm (Antigonish)*.....*Not printed.*

232*w*. Return to an Order of the House of the 9th March, 1914, for a copy of all papers, documents, correspondence, &c., from any person or persons in connection with the purchase of the site for the post office at Canning, N.S. Presented May 4, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

232*x*. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the construction of a lighthouse at Grand Anse, Gloucester County, N.B., and of the contract awarded. Presented May 5, 1914.—*Mr. Turgeon*.....*Not printed.*

232*y*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers, letters, telegrams, reports, deeds, fees paid to lawyers, and other documents relative to the purchasing of land from Mrs. C. F. Bertrand and Arthemise Dionne, in connection with the works on the southwest side of Rivière-Verte, l'Islet, County of Témiscouata. Presented May 5, 1914.—*Mr. Gauvreau* .....*Not printed.*

232*z*. Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence between the Minister of Public Works, the Minister of Justice, or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 5, 1914.—*Mr. Graham* .....*Not printed.*

232 (2*a*). Return to an Order of the House of the 16th March, 1914, for a copy of all correspondence, documents, recommendations and reports, respecting the dredging of Des Prairies river, the work done, depth, length and width of channel dredged, the list of men employed to perform that work, their salaries respectively, and the amount of money spent on that work since the 22nd of November, 1912, up to the 2nd of February, 1914. Presented May 7, 1914.—*Mr. Wilson (Laval)* .....*Not printed.*

232 (2*b*). Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams, correspondence, complaints, bills, accounts, vouchers, receipts and any documents in any way connected with the expenditure of money at Friar's Head Boat Harbour by Simon P. Doucet, during the years 1912-13, 1913-14. Presented May 7, 1914.—*Mr. Chisholm (Inverness)* .....*Not printed.*

232 (2*c*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the public building at Gravelburg, from and since January 1, 1912. Presented May 7, 1914.—*Mr. Knowles* .....*Not printed.*

232 (2*d*). Return to an Order of the House of the 23rd March, 1914, for a copy of all specifications and of all tenders pertaining to the Brantford public building now being erected, and of the contract awarded, and of all correspondence, whether by letter or telegram, with reference thereto. Presented May 7, 1914.—*Mr. Nesbitt*.....*Not printed.*

232 (2*e*). Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all correspondence, telegrams, petitions and memorials received by the Right Honourable R. L. Borden, Premier of Canada, or any other Minister of the Crown since the first day of October, 1911, from J. A. Gillies, Esq., N.S., or any resident of the County of Richmond, N.S., relative to expenditure of public money on public works in the said County of Richmond. Presented May 8, 1914.—*Mr. Kyte.* *Not printed.*

232 (2*f*). Supplementary Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence betewen the Minister of Public Works, the Minister of Justice or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 8, 1914.—*Mr. Graham* .....*Not printed.*

232 (2*g*). Return to an Order of the House of the 2nd February, 1914, for a return showing the dredging operations carried on in Bonaventure County in 1913, together with a copy of estimates, reports, and correspondence. Presented May 11, 1914.—*Mr. Marcil.* *Not printed.*

232 (2*h*). Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence and other documents in reference to the erection of a customs building in the village of Chesley, Riding of South Bruce. Presented May 12, 1914.—*Mr. Truax.* *Not printed.*

232 (2*i*). Return to an Order of the House of the 6th April, 1914, for a copy of all accounts and vouchers covering the expenditure during the calendar year 1913 at South Lake, Lakevale, Antigonish County, and showing in detail, the persons to whom such payments were made, what such payments were for, the number of day labourers employed, and the rate of wages, the quantity of material used and the price paid therefor, the quantity of material hauled to the work and not used, and the persons supplying such material. Presented May 12, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

232 (2*j*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers, telegrams, valuations, appraisals and other documents relative to the obtaining of a site for a public building at Hantsport, Nova Scotia. Presented May 12, 1914.—*Mr. Macdonald* .....*Not printed.*

232 (2*k*). Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams, reports, appraisals and other documents relative to the expropriation of the lands of John Campbell and Albert E. Milligan, in connection with the improvements on the East River at Pictou. Presented May 12, 1914.—*Mr. Macdonald* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

232 (2*l*). Return to an Order of the House of the 16th March, 1914, for a copy of all papers, letters and other documents, including pay-lists relating to the expenditure of moneys by the Public Works Department on Falmouth Township Dyke, Hants County, in 1913. Presented May 12, 1914.—*Mr. Macdonald*.....*Not printed.*

232 (2*m*). Return to an Order of the House of the 16th March, 1914, for a copy of all accounts, vouchers, pay-rolls, instructions, correspondence and recommendations relating to the expenditure on the public building at Arichat, N.S., since the 11th day of October, 1911. Presented May 16, 1914.—*Mr. Kyte* .....*Not printed.*

232 (2*n*). Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence and other documents in connection with the letting of the construction for the Toronto harbour works. Presented May 16, 1914.—*Mr. Pardee*.....*Not printed.*

232 (2*o*). Return to an Order of the House of the 2nd February, 1914, for a return showing the nature and cost of works carried on in the County of Bonaventure by the Department of Public Works since October 10, 1911, to date, together with a copy of all reports, estimates, pay-lists, and correspondence in connection therewith. Presented May 27, 1914.—*Mr. Marcil* (*Bonaventure*) .....*Not printed.*

232 (2*p*). Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence, documents, recommendations and reports respecting the dredging at Port Elgin, Westmorland County, N.B., with the names of men employed to perform that work, their salaries, respectively, and the amount of money spent on the same from January 1, 1901, to January 1, 1914. Presented May 27, 1914.—*Mr. Robidoux.*
Not printed.

232 (2*q*). Further Supplementary Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence between the Minister of Public Works, the Minister of Justice, or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 27, 1914.—*Mr. Graham*.....*Not printed.*

232 (2*r*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the Immigration Hall at Gravelburg, Sask., from and since the 1st January, 1912. Presented June 1, 1914.—*Mr. Knowles*.....*Not printed.*

232 (2*s*). Return to an Order of the House of the 2nd February, 1914, for a copy of all advertisements, tenders, accounts, vouchers, letters, documents and correspondence relating to the construction of a breakwater at The Graff, Halifax County, N.S. Presented June 2, 1914.—*Mr. Maclean* (*Halifax*) .....*Not printed.*

232 (2*t*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, telegrams, correspondence, contracts and documents relating to the surrender of a contract for dredging in Miramichi Bay, N.B., by Messrs. A. and R. Loggie, and also with reference to the letting of a contract for the same, or any portion of said work, to the Northern Dredging Company; together with a copy of all notices for tenders, tenders and contracts in connection therewith. Presented June 2, 1914.—*Mr. Carvell.*
Not printed.

232 (2*u*). Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams, documents, papers, &c., in connection with the purchase by the Government of lots 1 and 2, block 125, plan 96, in the city of Moosejaw, for an examining warehouse site. Presented June 2, 1914.—*Mr. Knowles*.....*Not printed.*

232 (2*v*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams, correspondence of all kinds, pay-rolls, vouchers, &c., in any way referring to the expenditure of moneys on sheer dams on the Margaree river, at Margaree and North East Margaree, during 1911-1912 and 1912-1913. Presented June 2, 1914.—*Mr. Chisholm* (*Inverness*) .....*Not printed.*

233. Return to an Order of the House of the 24th April, 1913, for a return showing what officers and men were employed on the dredge *Northumberland* at Pictou in the months of January, February and March, 1913, and the salaries and wages paid to them respectively; the amounts paid for repairs and supplies respectively, for said dredge during said months and to whom paid respectively. Presented April 2, 1914.—*Mr. Macdonald.*
Not printed.

234. New Lobster Fishery Regulations established by Order in Council of the 25th March, 1914, in lieu of those established by Order in Council of the 30th September, 1910, and all amendments thereto, by virtue of the provisions of Section 54 of the Fisheries Act, chapter 45 of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Hazen, April 7, 1914 .....*Not printed.*

235. Return to an Order of the House of the 23rd March, 1914, for a return showing:—
1. How many engineers there are in the employ of the Intercolonial Railway at Moncton and at other points on that railway, and their names?
2. How many were formerly in the employ of the Canadian Pacific Railway Company?
3. Whether Martin Murphy, C.E., is employed in the service of that railway. If so, when he was employed and what his age is? Presented April 7, 1914.—*Mr. Emmerson* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

236. Return to an Order of the House of the 30th March, 1914, for a return showing the travelling expenses paid by the Government to the Honourable Rodolphe Roy, Judge of the Superior Court at Rimouski, during the years 1912-1913 and 1914, for trips from Quebec to Rimouski and return. Presented April 8, 1914.—*Mr. Boulay*.....*Not printed.*

237. Return to an Order of the House of the 23rd March, 1914, for a return showing:—
1. The names of the lawyers who represented the Department of Justice in the district of Quebec, since the 21st September, 1911.
2. The amount of money paid to each of them. Presented April 8, 1914.—*Mr. Lapointe (Kamouraska)* .....*Not prin'cd.*

238. Return to an Order of the House of the 4th February, 1914, for a copy of all letters, telegrams and documents generally concerning the withdrawal of an appeal in the Supreme Court of Canada, in the case of His Majesty the King, appellant, and Alfred Olivier Falardeau and Constant Napoleon Falardeau, respondents. Presented April 8, 1914.—*Mr. Lemieux* .....*Not printed.*

239. Return to an Order of the House of the 16th March, 1914, for a copy of all transfers of lands by the Militia Department to the Harbour Commissioners of Montreal, and of all correspondence with regard to the same. Presented April 15, 1914.—*Mr. Carvell.*
Not printed.

240. Return to an Order of the House of the 2nd March, 1914, for a return showing:—
1. The quantities of wheat, by grade, received into the terminal elevators at Fort William and Port Arthur, from the date of the weigh-up in 1910, to date of weigh-up in 1911, the same for 1911-1912, and the same for 1912-1913.
2. The quantities, by grade, delivered by each of the said elevators during the same periods.
3. The average or shortage, as the case may be, of each grade in each of the said elevators, as shown by the said weigh-ups in each of those above mentioned periods.
4. The date of the weigh-up in each case. Presented April 15, 1914.—*Mr. Neely.*
Not printed.

241. Return to an Order of the House of the 2nd March, 1914, for a copy of all rules, orders and regulations, &c., affecting the handling of grain made by the Grain Commission to date, and of any changes made in elevator charges and terms, if any. Presented April 15, 1914.—*Mr. Neely* .....*Not printed.*

242. Return to an Order of the House of the 6th April, 1914, for a copy of the new rules and regulations in regard to employees of the Intercolonial Railway and Prince Edward Island Railways. Presented April 15, 1914.—*Mr. Macdonald*.....*Not printed.*

243. Return to an Address to His Royal Highness the Governor General of the 30th March, 1914, for a copy of all correspondence, petitions, lists of shareholders, Orders in Council, licenses, certificates and other papers and documents, and of all renewals thereof, relating to the incorporation and licensing of the Banque St. Jean, the Banque Ville Marie and the Banque Jacques Cartier, all in the Province of Quebec. Presented April 16, 1914.—*Mr. Demers* .....*Not printed.*

243*a*. Return to an Address to His Royal Highness the Governor General of the 23rd March, 1914, for a copy of all correspondence, petitions, lists of shareholdres, Orders in Council, licenses, certificates and other papers and documents and all renewals thereof, relating to the incorporation and licensing of the Bank of Yarmouth, and of all papers and documents relating to the winding up of the business of the said bank. Presented April 16, 1914.—*Mr. Law*.....*Not printed.*

243*b*. Return to an Address to His Royal Highness the Governor General, of the 16th March, 1914, for a copy of all correspondence, petitions, lists of shareholdres, Orders in Council, licenses, certificates and other papers and documents and all renewals thereof, relating to the incorporation and licensing of the Pictou Bank, and of all papers and documents relating to the winding up of the business of the said bank. Presented April 30, 1914. —*Mr. Macdonald* .....*Not printed.*

244. Return to an Order of the House of the 23rd March, 1914, for a copy of the reports made by Colin F. McKinnon, of Taylor's Road, Antigonish County, Frank A. McEchen, of Inverness, N.S., John A. McDougall of Glace Bay, C.B., J. M. McDonald, of Christmas Island, C.B., William Watkins of Cobourg Road, Halifax, S. P. Fream, of Brighton, Digby County, and J. J. Walker of Truro, N.S., special immigration agents appointed from the Province of Nova Scotia. Presented April 16, 1914.—*Mr. Chisholm (Antigonish)* .....*Not printed.*

245. Return to an Address to His Royal Highness the Governor General of the 4th February, 1914, for a copy of all correspondence and papers generally concerning the proposed changes of the Judicial Committee of the Privy Council. Presented April 16, 1914.—*Mr. Lemieux* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

246. Return to an Order of the House of the 2nd March, 1914, for a return giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of Government:—

1. As to the method of appointment, whether by executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or toherwise.

3. As to a re-appointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qual fications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or a dditional appointments in case of disagreement between the Upper and Lower House.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status of such Upper Chambers. Presented April 16, 1914.—*Mr. Middlebro.*

Printed for sessional papers only.

246a. Further Supplementary Return to an Order of the House of the 2nd March, 1914, for a return giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of Government:—

1. As to the method of appointment, whether by executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or otherwise.

3. As to a re-appointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qualifications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or additional appointments in case of disagreement between the Upper and Lower Houses.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status of such Upper Chambers. Presented June 10, 1914.—*Mr. Middlebro....*

Printed for sessional papers only.

247. Return to an Order of the House of the 1st April, 1914, for a return showing:—

1. What it has cost the Government for bottled and distilled water in Ottawa since January 1, 1912, to March 1, 1914?

2. What it is costing the Government per day now for bottled and distilled water? Presented April 16, 1914.—*Mr. Sexsmith*.....*Not printed.*

248. Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters, telegrams, reports and other documents relative to the purchase of land from Joseph Fraser, in connection with the works at Cariboo Island, Pictou County, in the Public Works Department. Presented April 16, 1914.—*Mr. Macdonald....Not printed.*

249. Return to an Order of the House of the 21st May, 1913, for a copy of all correspondence exchanged during the year 1912, between Captain Belanger, commandant of the *Eureka* and the Department of Marine and Fisheries, both at Quebec and Ottawa. Presented April 16, 1914.—*Mr. Boulay* .....*Not printed.*

250. Return to an Order of the House of the 23rd March, 1914, for a return showing:—

1. The names of the wharfingers at Coteau Landing from 1900 to 1914.

2. The names of the vessels which moored there during that period.

3. What wharfage each of those vessels paid during that time?

4. What wharfage a coaler paid for unloading between 1900 and 1912? Presented April 17, 1914.—*Mr. Paquet*.....*Not printed.*

251. Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence, letters, telegrams and documents in connection with the removal of ice in Yarmouth, N.S., harbour, by C.G.S. *Stanley* in February, 1914. Presented April 21, 1914.—*Mr. Law* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

252. Report of the Royal Commission on Penitentiaries, together with the evidence taken and exhibits filed before the said commission. Presented by Hon. Mr. Doherty, April 22, 1914. (Report only) .....*Printed for distribution and sessional papers.*

253. Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How many professors, lecturers and inspectors the Department of Agriculture has in the Province of Prince Edward Island?

2. Their names, the salaries they receive, and the travelling expenses of each.

3. The duties of these professors, lecturers and inspectors?

4. How many meetings were held or demonstrations given by each of these professors, lecturers and inspectors during the months of March, April, May, June, July, August, September and October last year?

5. Where each meeting was held or demonstration given, and how each was advertised?

6. How many boxes, baskets and barrels of fruit were inspected last season, and the kinds of fruit so inspected?

7. When and where the inspection took place and how many boxes, baskets and barrels were found to be improperly or falsely marked?

8. Whether the Department received a resolution or petition from the Fruit Growers' Association of Prince Edward Island.

9. If so, what prayer or request the said resolution or petition contained, and what the Department has decided to do in regard to the matter?

10. How many cheese and butter factories were operated in each of the counties of Prince Edward Island in the year 1910 and how many in the year 1913. Presented April 22, 1914.—*Mr. Hughes (P.E.I.)*.....*Not printed.*

254. Return to an Order of the House of the 26th February, for a return showing:—The freight rates charged during the years 1912 and 1913 on wheat from Fort William or Port Arthur to ports on the Georgian Bay and Canadian ports on Lake Huron and Lake Erie, by the Canadian Pacific Steamship Line, the Northern Navigation Company, the Merchant's Mutual Line, Inland Lines, and the Canadian Lake Line. Presented April 24, 1914.—*Mr. Aikins* .....*Not printed.*

255. Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, papers, telegrams, recommendations and documents of every kind in connection with the purchase of a Rifle Range near Souris, Prince Edward Island. Presented April 27, 1914. —*Mr. Hughes (P.E.I.)*.....*Not printed.*

256. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, telegrams, correspondence, accounts, receipts, vouchers, &c., in reference to the supply of meats, hay, oats, and all other supplies for the 1913 summer and autumn drill at Aldershot Camp, Nova Scotia. Presented April 27, 1914.—*Mr. Maclean (Halifax)*.....*Not printed.*

256a. Return to an Order of the House of the 30th March, 1914, for a copy of all advertisements, tenders, contracts, documents, papers, &c., relative to the supply of ice for the Aldershot Military Camp, N.S., for the season of 1914. Presented May 29, 1914.—*Mr. Maclean (Halifax)* .....*Not printed.*

257. Return to an Order of the House of the 1st April, 1914, for a Return showing:—

1. The total amount paid for pensions by the Department of Militia and Defence for the year ending March 31, 1913.

2. The number of militia officers at present on the pay-roll of the permanent corps.

3. How many private soldiers are at present on the pay-roll of the permanent force?

4. How many private soldiers joined the force during 1913?

5. How many deserted during 1913?

6. The gross amount expended by the Department of Militia and Defence for the salaries of officers and officials of every kind in the employ of the Department at Ottawa or elsewhere during the fiscal year 1912-1913.

7. The gross amount paid out for services to the private soldiers of the permanent corps during the said year 1912-1913. Presented April 27, 1914.—*Mr. Sinclair.*

Not printed.

258. Return to an Order of the House of the 4th February, 1914, for a copy of all letters, telegrams, &c., exchanged between the Department of Militia and Messrs. A. Macdonald, E. Montpetit and others, in connection with the organization of the 33rd Hussars, at Vaudreuil and Soulanges. Presented April 27, 1914.—*Mr. Boyer*.....*Not printed.*

259. Return to an Order of the House of the 9th March, 1914, for a copy of all letters, telegrams, reports, and other correspondence, in possession of the Department of Militia and Defence, relating to the purchase of land in Farnham, Quebec, for a military camp ground. Presented April 27, 1914.—*Mr. Kay*..... *Not printed.*

260. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence between the Department of Agriculture or the Department of Customs and C. S. Campbell, Esq., K.C., relating to the importation of pure-bred animals into Canada. Presented April 27, 1914.—*Mr. Kay* .....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

261. Return to an Order of the House of the 2nd March, 1914, for a copy of all correspondence, letters, telegrams, and other documents relative to the immigration of Asiatics, including Hindus, Japanese and Chinese, which have a bearing either directly or indirectly upon the Order in Council passed by the Government during December, 1913, restricting immigration into the Province of British Columbia. Presented April 27, 1914.—*Mr. Oliver* ..... *Not printed.*

262. Return to an Address to His Royal Highness the Governor General of the 30th March, 1914, for a copy in duplicate of all leases, agreements, correspondence, Orders in Council and other documents relating to the water-power or privileges connected with the Stevens Dam, so called, that had been constructed across the River Trent at the village of Campbellford, together with a copy in duplicate of a license in connection with said dam, granted to the Honourable James Cockburn and others under date December 9, 1869, and of all correspondence with, and opinions of, the Minister of Justice at the time of the granting of said license and since that date; also a duplicate copy of all papers, correspondence, Orders in Council and other documents relating to or connected with the cancellation, termination and revocation of such license on the 12th of August, 1911, and of all correspondence, propositions, agreements or other documents had and made by, to or with the Trent Valley Woollen Manufacturing Company, Limited, and of all correspondence with the Department of Justice and opinions thereof relating thereto; also a duplicate copy of all correspondence, reports, Orders in Council and other documents referred to or mentioned in an Order in Council of date August 25, 1913, set forth on page W 398, in the third volume of the Auditor General's Report, 1913, and of all correspondence with the Auditor General and by and between the Auditor General and any department of Government relating thereto or connected therewith. Presented April 27, 1914.—*Mr. Emmerson* ..... *Not printed.*

263. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, deeds, contracts, &c., in connection with the purchase by the Board of Harbour Commissioners of Quebec, of a stone quarry at St. Nicholas, Que. Presented April 28, 1914.—*Mr. Lemieux* ..... *Not printed.*

264. Return to an Order of the House of the 6th April, 1914, for a copy of all petitions, correspondence, telegrams and other papers and documents received by the Department of Marine and Fisheries since January 1, 1914, relating to the transportation of fish from the Maritime Provinces to the United States, and of all replies thereto. Presented April 29, 1914.—*Mr. Sinclair*..... *Not printed.*

265. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, deeds and contracts in connection with the purchase by the Department of Agriculture of a quarantine station at Lévis, Que., on or about July 29, 1913. Presented April 29, 1914.—*Mr. Lemieux* ..... *Not printed.*

266. Copy of Order in Council No. P. C. 976, dated 18th April, 1914, "Revised Regulations governing the entry of Naval Cadets." Presented by Hon. Mr. Hazen, April 30, 1914. *Not printed.*

266*a*. Copy of Order in Council dated 18th May, 1914, concerning the organization of a Naval Volunteer Force. Presented by Hon. Mr. Hazen, May 23, 1914.....*Not printed.*

267. Return to an Order of the House of the 4th March, 1914, for a copy of all papers, correspondence and telegrams concerning the deportation of Bhwagan Singh, a Sikh priest, in defiance of a writ of Habeas Corpus. Presented April 30, 1914.—*Mr. Lemieux.* *Not printed.*

268. Statement of receipts and expenditures of the National Battlefields Commission to 31st March, 1914, as required by 7-8 Edward VII, chapter 57, section 12. Presented by Hon. Mr. White, May 4, 1914.....*Not printed.*

269. Copy of the trust deed, dated 30th June, 1903, between the Canadian Northern Railway Company and the British Empire Trust Company and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914.....*Not printed.*

269*a*. Copy of the trust deed, dated 6th May, 1910, between the Canadian Northern Railway Company and the British Empire Trust Company and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914..... *Not printed.*

269*b*. Copy of the trust deed, dated 19th November, 1913, between the Canadian Northern Railway Company, Mackenzie, Mann & Co., Limited, and the British Empire Trust Company, and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914..... *Printed for distribution and sessional papers.*

269*c*. Statement showing the floating liabilities of the railway companies embraced in the general title of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 4, 1914 ..... *Not printed.*

269*d*. Statement of securities pledged as collateral to temporary loans of the Canadian Northern System. Presented by Hon. Mr. Borden, May 4, 1914.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

269*e*. Statement showing the engineer's estimate of the cost of completing the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 4, 1914....*Not printed.*

269*f*. Statement of capital stock authorized and issued, of the companies set out in the first schedule. Presented by Hon. Mr. Borden, May 6, 1914.....*Not printed.*

269*g*. Approximate estimate of betterments for six years of the lines of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 6, 1914.....*Not printed.*

269*h*. Statements as on 31st December, 1913, bearing on the financing of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 6, 1914.....*Not printed.*

269*i*. Papers and statements in respect to the Canadian Northern Railway System:—
1. Correspondence, including official application for aid.
2. Detailed statements showing particulars of capitalization, earnings, cost to complete, &c. Presented by Hon. Mr. Borden, May 6, 1914.
Printed for distribution and sessional papers.

269*j*. Copy of trust deed dated October 4, 1911.—The Canadian Northern Railway to the Guardian Trust Company, Limited, and the British Empire Trust Company, Limited, and His Majesty the King and the Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 7, 1914.....*Printed for distribution and sessional papers.*

269*k*. List of companies whose total issued stock is owned by the Canadian Northern Railway Company; also, list of companies whose total issued stock is to be transferred to The Canadian Northern Railway Company; and also, list of companies in which the controlling interest is to be transferred to The Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 7, 1914.....*Not printed.*

269*l*. Further statements bearing on the financing of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 7, 1914.
Printed for distribution and sessional papers.

269*m*. Correspondence and telegrams received from the premiers of the Provinces of Nova Scotia, British Columbia, Alberta, and the Acting Premier of Saskatchewan, in regard to the granting of aid to the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 7, 1914..... *Printed for distribution and sessioanl papers.*

269*n*. Copy of trust deed dated 28th December, 1903.—The Lake Superior Terminals Company, Limited, and the National Trust Company, Limited, and the Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 11, 1914.....*Not printed.*

270. Return to an Order of the House of the 20th April, 1914, for a copy of all letters, telegrams and other documents relating to the refusal of the Railway Department, or any official of the Intercolonial Railway to permit employees of the railway at Moncton to attend the militia camp in the last year. Presented May 6, 1914.—*Mr. Macdonald.*
Not printed.

271. Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence received by the Government since October 1, 1911, to date, from John M. Cormick, of Sydney Mines, N.S., in reference to the following matters in the Riding of North Cape Breton and Victoria:—Railway extension into the Riding of North Cape Breton and Victoria; the opening of the harbour at Dingwall, Aspey Bay, C.B.; the breakwater at Meat Cove in the said Riding; the boat harbour at Bay St. Lawrence; the breakwater at White Point; the breakwater at Neil's Harbour; the breakwater at McLeod's, Ingonish; in respect to Ingonish Harbour; the breakwater at Breton Cove; the breakwater at Little Bras d'Or; the breakwater at Cape Dauphin; the breakwater at Point Aconi; the proposed wharf at North Sydney the proposed extension of the breakwater at North Sydney; the bringing of the Intercolonial Railway to the ballast ground at North Sydney; the wharf at Sydney Mines; the wharf at Leitches Creek; the repairs to the wharf at Groves Point; the rebuilding of the wharf at Boisdale; the breakwater at Jamesville; the wharf at Castle Bay, and the proposed wharf at Shenacadie. Presented May 7, 1914.—*Mr. McKenzie*.....*Not printed.*

272. Copy of all letters, documents and correspondence relating to action by the Government in regard to the relief of the shareholders and depositors of the Farmers Bank, and of the Order in Council appointing Sir William Meredith as Commissioner, and all correspondence in relation thereto. And also, Statement of Affairs, &c., relating to the Farmers Bank of Canada. Presented by Hon. Mr. White, May 8, 1914....*Not printed.*

273. Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams and correspondence received by the Postmaster General in connection with complaints made that the postmaster at Yarmouth North, N.S., had been or is selling stamps outside his jurisdiction. Presented May 8, 1914.—*Mr. Law*.....*Not printed.*

274. Return to an Order of the House of the 9th February, 1914, for a return showing the number of criminals released on parole from the various penitentiaries of the Dominion for the year ending March 31, 1913; the offence for which each prisoner so released was convicted, and showing at the same time whether such offence was a first, second, or subsequent offence. Presented May 8, 1914.—*Mr. Sinclair*.....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

275. Return to an Order of the House of the 9th March, 1914, for a return showing:—
1. How many acres of public land have been given to railway companies in the Dominion of Canada by the Federal Government from 1878, to the present time?
2. How many acres were granted in each year during the above period of time? Presented May 11, 1914.—*Mr. Tobin* ..... *Not printed.*

276. Return to an Order of the House of the 2nd February, 1914, for a return showing the receipts and expenses of the post office at St. Philippe, East, and of the post office at St. Philippe, West, in the parish of St. Philippe de Néri, since the first of June, 1912, to date. Presented May 11, 1914.—*Mr. Lapointe (Kamouraska)* ..... *Not printed.*

277. Report of the Dominion Wreck Commissioner in the matter of a formal investigation into the causes which led to the British steamer *Saturnia* touching the ground in the Lower Traverse, River St. Lawrence, on Tuesday, April 28, 1914. Presented by Hon. Mr. Hazen, May 12, 1914..... *Printed for sessional papers only*

278. Report of the Dominion Wreck Commissioner in the matter of a formal investiagtion into the causes which led to the stranding of the British steamship *Montfort*, on Beauport Bank, River St. Lawrence, on Tuesday, April 28, 1914. Presented by Hon. Mr. Hazen, May 12, 1914..... *Printed for sessional papers only.*

279. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of the Order in Council appointing Arthur Plaunte, Esq., a Commissioner to receive claims against the Atlantic and Lake Superior Railway, the Baie des Chaleurs Railway and the Quebec Oriental Railway, and of the report of said Commissioner and of the statement of claims accepted and those rejected by him, with the reasons therefor, as well as of all correspondence, memorials, petitions and documents, generally bearing on said subject. Presented May 12, 1914.—*Mr. Marcil (Bonaventure)* ..... *Not printed.*

279*a*. Supplementary Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of the Order in Council appointing Arthur Plaunte, Esq., a Commissioner to receive claims against the Atlantic and Lake Superior Railway, the Baie des Chaleurs Railway and the Quebec Oriental Railway and of the report of said Commissioner and of the statement of claims accepted and those rejected by him, with the reasons therefor, as well as of all correspondence, memorials, petitions and documents, generally bearing on said subject. Presented May 22, 1914.—*Mr. Marcil (Bonaventure)* ..... *Not printed.*

280 Return to an Order of the House of the 6th April, 1914, for a copy of all correspondence, accounts, indemnities, travelling expenses, &c., from Fraserville to Quebec, and of all other documents relating to the amount of money received each year by His Honour Mr. Justice Ernest Cimon, from 1890 to 1913, as Judge of the Superior Court sitting at Quebec, during the time he was connected with the District of Kamouraska. Presented May 16, 1914.—*Mr. Gauvreau* ..... *Not printed.*

281. Report of the delegates appointed by the Government of Canada to attend the "International Purity Congress," held in the city of Minneapolis, Minn., November 7-12, 1913. Presented by Hon. Mr. Borden, May 16, 1914..... *Not printed.*

282. Agreement between the Government and steamship companies for mail carriage between Canadian and European ports.—*(Senate)* ..... *Not printed.*

283. Return to an Order of the House of the 15th April, 1914, for a return showing:—
1. How many passengers have been carried over the Intercolonial Railway from St. John to Halifax, and from Halifax to St. John, respectively, under the agreement made on the 30th September, 1913, between the Canadian Government Railways by F. P. Gutelius, General Manager and the Canadian Pacific Railway Comapny, by G. M. Bosworth, General Traffic Manager, from the 15th November, 1913, when the said agreement went into effect, to the 31st March last?
2. How many tons of freight of each of the classes mentioned in said agreement have been carried each way over the Intercolonial Railway between St. John and Halifax, under said agreement during said period?
3. What have been the total earnings by the Intercolonial Railway under said agreement up to the 31st March last, for passengers and freight carried, respectively?
4. What amount has been paid to or earned by the Canadian Pacific Railway for car hire under said agreement?
5. What number of empty cars of the Canadian Pacific Railway Company have been hauled by the Intercolonial Railway free under said agreement, and what has been the cost of such haulage?
6. What would have been the total amount paid by the Canadian Pacific Railway Company to the Intercolonial Railway, under the tariff prevailing at the time of the making of said agreement, for the passengers and the freight so carried, respectively?
7. Whether the said agreement has been submitted, as promised by the Government, to the Board of Railway Commissioners by the Minister of Railways for the purpose of having the Board determine as to whether or not said agreement is discriminatory against the port of St. John. If not, why was it not so submitted?

CONTENTS OF VOLUME 28—*Continued.*

8. If it is the intention of the Minister of Railways to renew the said agreement, or to put in force a similar agreement, during the next Winter Port season.

9. What agreement the Government intends to make as to the Atlantic termini of the fast Atlantic mail steamers for the winter of 1914-1915. Presented May 22, 1914.—*Mr. Pugsley* ..... *Not printed.*

284. Return to an Order of the Senate dated 15th May, 1914:—

1. How many judges have been retired since 1880?
2. What are their names?
3. What salary did they receive in each case?
4. How many years did they serve in each case?
5. What was the reason given for their retirement?
6. How much did they receive for retirement allowance each year in each case?

Ordered, that the same do lie on the table, and it is as follows.—(*Senate*).

Not printed.

285. Return to an Address to His Royal Highness the Governor General of the 9th March, 1914, for a copy of all petitions, letters, telegrams and documents by any and all parties to and by the Department of Railways and Canals, or any other Department of the Government, with reference to the Southampton Railway Company, also of all reports of engineers and recommendations regarding a subsidy to the said railway, and of all Orders in Council granting same, and of all other documents and memoranda in the possession of the Department of Railways and Canals or other Departments of the Government regarding the said railway. Presented May 27, 1914.—*Mr. Carvell.*

Not printed.

286. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, papers, documents, contracts, &c., between the Government of Canada and any company, firm or individuals from May 1, 1913, to December 1, 1913, referring to the establishment of a subsidized steamship service between Canada and the British West Indies. Presented May 27, 1914.—*Mr. Maclean (Halifax)* ..... *Not printed.*

287. Return to an Order of the House of the 4th May, 1914, for a copy of all papers, letters, telegrams, accounts and receipts concerning advances made to the Montagnais Band of Indians through the agency of Seven Islands, Quebec. Presented May 29, 1914.—*Mr. Lemieux* ..... *Not printed.*

288. Return to an Order of the House of the 11th May, 1914, for a copy of all papers, letters, telegrams, accounts and receipts, concerning advances or payments made by the Government to Newton Wesley Rowell, K.C., for legal services in connection with the Oko Indian litigation. Presented May 29, 1914.—*Mr. Sharpe (Ontario)* ..... *Not printed.*

288a. Return to an Order of the House of the 6th May, 1914, for a return showing:—

1. Whether the Government paid Newton Wesley Rowell, K.C., any sums of money for legal services during the past fifteen years?
2. If so, the amounts and when?
3. Whether the Government paid the firm of which Mr. Rowell is the senior partner any sums of money for legal services?
4. If so, the amounts and in what years? Presented May 29, 1914.—*Mr. Sharpe (Ontario)* ..... *Not printed.*

289. Return to an Order of the House of the 20th April, 1914, for a return showing:—

1. The date of the incorporation of the Canadian National Bureau of Breeding, Limited, with the names, addresses and occupations of the charter members of said Company.
2. The amount of capital of the Company and the number of shares into which it is divided.
3. The number of shares taken from the commencement of the Company up to the date of the return.
4. The amount of calls made on each share, the total amount of calls received, the total amount of calls unpaid, and the total number of shares forfeited.
5. The names, addresses and occupations of the persons who have ceased to be members within the twelve months next preceding, and the number of shares held by each of them.
6. The amount of money paid to said Company by the Government in each year since incorporation. Presented May 29, 1914.—*Mr. Sutherland* ..... *Not printed.*

290. Return to an Order of the House of the 9th February, 1914, for a copy of all reports made by the inspectors of agents for placing farm labourers and domestic servants in Canada during the calendar years 1912 and 1913. Presented May 29, 1914.—*Mr. Sutherland.*

Not printed.

291. Return to an Order of the House of the 2nd March, 1914, for a return showing all the buildings, houses, offices and immoveables, occupied by the Federal Government in Montreal, for the use of the various Departments and services of each branch of the administration, together with the following information in each case; for what Department and for what service; where situated, street and number thereof; whether Government property or under lease; in the latter case, the length of lease, the rent per annum and also the other charges that may be imposed upon the Government. Presented June 4, 1914.—*Mr. Wilson (Laval)* ..... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

292. Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence exchanged by and with the Department of Public Works or the Post Office Department, relating to an application or applications for a post office building at the town of Melville, Province of Saskatchewan. Presented June 4, 1914.—*Mr. MacNutt.*
Not printed.

293. Memorandum, correspondence, estimates of cost, &c., in connection with the construction of the Grand Trunk Pacific Railway—Mountain Section. Presented by Hon. Mr. Borden, June 4, 1914.....*Not printed.*

294. Return to an Order of the House of the 4th February, 1914, for a return showing the names and addresses of the people with whom pure bred animals have been placed by the Department of Agriculture, the breed in each case, and the conditions on which these animals were placed. Presented June 5, 1914.—*Mr. Kay*.....*Not printed.*

295. Return to an Order of the House of the 30th March, 1914, for a copy of all correspondence, telegrams, instructions, accounts, vouchers and other papers and documents relating to the purchase of live stock in the Maritime Provinces by one Howard Corning of Yarmouth, N.S., during the period of his employment; also a copy of the appointment of the said Howard Corning and of all correspondence, complaints and other documents relating to the dismissal of the said Howard Corning, if he has been dismissed or retired from the service, together with a copy of all recommendations, correspondence and other papers relating to the appointment of the said Howard Corning's successor. Presented June 5, 1914.—*Mr. Sinclair* .....*Not printed.*

296. Return to an Order of the House of the 19th March, 1914, for a return showing:—
1. How many pure bred stallions and bulls have been purchased by the Department of Agriculture for the use of settlers in the Provinces of Manitoba, Saskatchewan and Alberta since the first of January, 1912, to date.?
2. Where these animals were purchased, and from whom; and also the price paid for them respectively. Presented June 5, 1914.—*Mr. Douglas*.....*Not printed.*

297. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, including letters, telegrams and accounts, regarding the purchase and disposal during year 1913, of all horses, cattle, sheep and swine for the Department of Agriculture, Province of Quebec for Experimental Farms, or for the improvement of stock, together with a return showing the commission and fees paid, and to whom paid, for and on account of said purchases. Presented June 8, 1914.—*Mr. Robb*....*Not printed.*

298. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all arrangements made between the Government and the various Provinces under the Agricultural Instruction Act. Presented June 10, 1914.—*Sir Wilfrid Laurier* .....*Not printed.*

299. Partial Return to an Address to His Royal Highness the Governor General of the 4th March, 1914, for a copy of all correspondence, telegrams, petitions, Orders in Council, and other papers and documents, relating to subventions or assistance given, or to be given, by the Department of Marine and Fisheries or the Department of Agriculture to firms or joint stock companies, or persons operating cold storage plants for the preservation of fish products in Nova Scotia during the years 1908, 1909, 1910, 1911, 1912 and 1913, excluding such correspondence, &c., as relates to companies known as Fishermen's Bait Association. Presented June 10, 1914.—*Mr. Sinclair*.....*Not printed.*

300. Copy of Order in Council No. P.C. 1386, of the 29th May, 1914, concerning the regulations governing the Radiotelegraph administration. Presented by Hon. Mr. Hazen, June 11, 1914 .....*Not printed.*

300a. Copy of regulations governing Radiotelegraphy promulgated under section 11, Radiotelegraph Act, 1913. Presented by Hon. Mr. Hazen, June 11, 1914.....*Not printed.*

301. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, tenders, telegrams, plans, specifications and other documents in regard to the construction of the new ice breaker by the Canadian Vickers Company of Montreal. Presented June 11, 1914.—*Mr. Macdonald* .....*Not printed.*

302. Return to an Address to His Royal Highness the Governor General of the 16th March, 1914, for a copy of all petitions, letters, affidavits, telegrams and documents to and by the Department of Justice, or any oaher Department of Government, on behalf of or in reference to Wm. J. Kelley, a prisoner in the United States federal prison at Atlanta, Ga., and of all the letters, telegrams and other memoranda between the Department of Justice, or any other Department of the Government, and the British Ambassador at Washington, or the Government of the United States, regarding the imprisonment and proposed liberation of the said Wm. J. Kelley. Presented June 12, 1914.—*Mr. Carvell.*
Not printed.

RETURN

(118)

REPRESENTATION IN THE HOUSE OF COMMONS OF CANADA.

SPECIAL CLAIM ON BEHALF OF PRINCE EDWARD ISLAND.

GENERAL STATEMENT.

When this province entered Confederation, it was allowed six representatives, though on a basis of population it would only have obtained five.

On the redistribution following the census of 1881 no reduction was made, although it had still but five units of representation.

After the census of 1891 representation was reduced to five.

After the census of 1901 it was reduced to four.

If the same principle is applied, the next redistribution Bill will reduce its representation to three.

It is claimed that according to the spirit of the terms upon which Prince Edward Island entered Confederation, the original number of its representatives should not be decreased, and that in order to carry out the true compact, that number should be restored.

First Confederation Conference was held in Charlottetown, September, 1864; adjourned meeting held in Quebec, October, 1864.

Prince Edward Island refused to enter the Union unless six representatives were conceded.

The following extracts from the speeches of the Island delegates at the Quebec Conference show definitely their reasons for standing out:—

Mr. Haviland:

'Prince Edward Island would rather be out of the Confederation than consent to this motion. We would have no status, only five members out of one hundred and ninety-four would give the Island no position.'

Mr. Palmer:

'Representation by population is not applicable when a certain number of provinces are throwing up their self-government and individuality. When a colony surrenders that right she should have something commensurate in the Confederation. Why give up so great certainties where we have only a feeble voice. I never understood that any proposition at Charlottetown was to be binding as to representation by population.'

Colonel Grey:

'I am instructed by my co-delegate to say that the provision of five members is unsatisfactory.'

At the following session of the Legislature of Prince Edward Island, held in 1865, the Quebec Resolutions were discussed. These Resolutions provided:—

'17. The basis of representation in the House of Commons shall be population, as determined by the official census every ten years; and the number of members at first shall be 194, distributed as follows:—

Upper Canada	82
Lower Canada	65
Nova Scotia	19
New Brunswick	15
Newfoundland	8
Prince Edward Island	5

Hon. J. C. POPE, Prime Minister, afterwards Minister of Marine, said:

'If the relative circumstances of Canada and this Island should render a Union practicable, the evident injustice of the terms agreed to by the Quebec Conference would prevent their being ratified by the Lgislature of this Island. Without admitting the principle of representation according to population under all circumstances to be sound, it is, in the opinion of this House, particularly objectionable as applied to this Island in connection with Canada, taking into consideration that the number of our inhabitants is, and must continue comparatively small, owing to the fact that we have no Crown lands, mines, minerals, or other resources sufficient to induce immigrants to settle here, and that we never can expect to become to any extent a manufacturing people in consequence of our navigation being closed for nearly half the year, and all trade and communication with other countries stopped.'

And later, in the same debate, Mr. POPE is reported thus:

'Among these objections I may mention the principle of representation by population. A very simple calculation will show that the adoption of this as a standard would entitle the city of London to send to the British House of Commons no less than seventy representatives, and the city of Montreal in the Confederate Parliament would have a representation greater than that of this Island. Its statistics warrant the belief that in a few years the population will be so increased by the influx of the tide of immigration that the Island would lose in the halls of legislation even the small voice which she might raise at her entrance into the Union.' (Debates P.E.I. Legislature, 1865, p. 45, *et seq.*)

Hon. Mr. HENSLEY:

'The terms of the report before us are, in my opinion, very unfavourable to this Island. On the scale of representation proposed, we would be without the slightest influence in the United Parliament. It is true that, if we went into the proposed Union, we would have no right to expect as large a number of representatives as either of the Lower provinces, but then why should we throw away the independence which we now enjoy?' (Debates P.E.I. Legislature, 1865, p. 50 *et seq.*)

Mr. HOWLAN:

'Representation by population might be very well for Canada herself, but in a general Union of the Colonies, it would operate injuriously for the Maritime Provinces, as they could not expect to protect their interests when they would have to contend with 100 of a clear majority over their own representation. This principle would give the city of Montreal, with its 10,000 inhabitants, one representative more than this Island. Quite different is the representation of Great Britain, for while London has about the same population as Scotland, that city has only 16 members in the House of Commons, while Scotland has 53. But it may be argued that as our

population increases our representation will increase. This is very doubtful. Indeed, under the operation of the 20th and 21st clauses of the Report it seems probable that we might lose our representation altogether. Lower Canada is always to have 65 members, and the representation of the other Colonies is to be arranged every ten years so as to give each the same ratio to population as she will then possess. Now, should the population of Lower Canada increase more rapidly than that of this Island, which is almost certain to be the case, our representation would decrease, and we would be left perhaps without a member at all.

Mr. DUNCAN:

'As to the General Legislature I consider the representation in it allowed to this Island unfair and unjust. The five representatives allotted to us in the Lower House would not give the colony much influence there; but as our population will not increase so rapidly as that of Canada, there is a prospect, through the operation of one clause in the report, that our five representatives would dwindle down to three. Taking all these points into consideration, therefore, it is clear to me that we have nothing to gain and much to lose by adopting the Quebec scheme.' (Debates P.E.I. Legislature, 1865, p. 65, *et seq.*)

The above extracts represent the attitude of both political parties in the province at that time.

The Canadian government continued desirous to round off Confederation with the addition of Prince Edward Island, but no definite progress was made until the year 1873, when that government at last conceded six members as the following correspondence shows:—

Telegram from Robert P. Haythorne to Lieutenant Governor Robinson, dated February 26, 1873.

'Held two conferences. Increase of annual allowance. Probable yield six representatives.'

Telegram from Robert P. Haythorne to Lieutenant Governor Robinson, March 6, 1873.

'Highly probable get six representatives; try and send reply Council as soon as possible.'

Telegram from Lieutenant Governor Robinson to Robert P. Haythorne.

'Council will concur in advising dissolution. We hope six representatives will be conceded.'

Telegram to Hon. Edward Palmer from Robert Haythorne, March 6, 1873.

'Except modifications stated and interest difference old debt better terms allowed. Six members conceded.'

That we were to have a minimum representation of six is made clear enough from the evidence and facts above submitted. By some oversight or mistake the memorandum embodying the terms did not in clear and unequivocal language provide for such. That, however, was the joint mistake of both contracting parties and a mutual mistake should never be held to be binding. Had there been more care shown at that time in seeing that the understanding for a minimum representation of six had been clearly placed in the agreement no one would have made the least objection. We are simply asking now that the mistake then made be corrected.

SECOND GROUND.

The decline in the population of this province was owing in some degree to the failure of Canada to carry out its contract to place 'the Island in continuous communication with the railway system of the Dominion.'

Prior to Confederation, this Island had a well-established commerce directly with Great Britain, the West Indies and other lands, and had a very small proportion of its commerce with the colonies now comprised in Canada. By entering the Union the direction and control of its commerce and industrial development were delivered over to Canada; the independent lines of trade which this Island had established were diverted to Canadian channels and continuous communication with the mainland as a consequence became essential to its welfare.

Canada defaulted on its contract.—It is unnecessary to set forth in detail the extent of this default. It was admitted in 1901 when the Dominion agreed to pay annually to this province the sum of $30,000 'for non-fulfilment of the terms of Union as respects the maintenance of efficient steam communication both summer and winter between the Island and the mainland.'

The utter inadequacy of this allowance need not be considered in this connection. The point is that the breach of contract was admitted by Canada.

Prior to Confederation this Island was doubling its population every 30 years; its revenues were doubling every 12 years. In 1841 its population was 47,034; in 1871—the last census before Confederation—it was 94,021. At a steadily diminishing ratio of increase it reached 109,078 in 1891 and then declined rapidly to 93,722 in 1911.

If the pre-Confederation ratio of increase had been maintained the population would now be 219,000.

In the neighbouring colony of Newfoundland in which the natural advantages were much less and where the ratio of increase had always been much lower, the population increased from 161,374 in 1874 when its census was taken, to upwards of 240,000 in 1911. Population always tends to move from disadvantage to advantage.

It is but fair to assume that the unfavourable conditions brought about in this province by the non-fulfilment of the terms of Confederation had much to do with its loss of population and it is contended that it is most unjust that this province should be penalized by Canada for Canada's default.

It is impossible to come to any other conclusion than that the draughtsman in drawing up the terms of Union overlooked the agreement that had been arrived at as to representation and neglected to use words necessary to provide for a minimum representation. It is clear that our province refused to accept the Quebec terms because that minimum of six was denied us. Is it reasonable to suppose that having refused to come in for nine years on account of the smallness of the representation which the Quebec terms offered that all these objections would vanish in 1873 and that the Island would join the Union knowing that it would only have six members for a few years.

After the census of 1891 we lost one member. After that of 1901 another, and unless this conference comes to our relief with a recommendation we will certainly lose a third as a result of the census of 1911; and in a few years our province will only have one representative in the House and eventually none at all. When this takes place an intolerable situation will arise. Taxation without representation is, under constitutional government, impossible and to this Prince Edward Island is steadily drifting. It is not the part of wisdom to wait till that day arrives. The remedy should be given and the mistake under which our province suffers should be corrected now. Delay only aggravates the situation and renders the final adjustment more difficult.

Dated at Ottawa this 27th day of October, A.D. 1913.

RETURN

(118*a*)

REPRESENTATION

IN

THE HOUSE OF COMMONS OF CANADA.

MEMORANDUM on behalf of Nova Scotia, New Brunswick and Prince Edward Island, claiming the right to have their original representation restored.

GENERAL STATEMENT.

Nova Scotia and New Brunswick were two of the charter members of Confederation. Prince Edward Island joined the Union in 1873 under the provisions of section 146 of the British North America Act.

The following table shows the representation allowed these provinces from time to time, and the effect of applying the same principle to the last census:—

—	Original Number.	After census of 1881.	After census of 1891.	After census of 1901.	After census of 1911.
Nova Scotia	19	21	20	18	16
New Brunswick	15	16	14	13	11
Prince Edward Island	6	6	5	4	3

The question of the legal right of New Brunswick and Prince Edward Island to retain their original representation was referred to the Supreme Court of Canada in 1903, and was decided against these provinces. On appeal to the Privy Council, the answer of the Supreme Court to the question submitted was held to be correct.

We must bow to this decision so far as the strict interpretation of the written contract is concerned, but this was not the expectation and belief of the delegates at the time of the negotiation of the terms of Union, for the Hon. George Brown in moving the resolution fixing the number of representatives which each colony should have in the House, stated: 'The practical result will be that while Lower Canada certainly will not be less and the lower provinces may increase in population, they cannot decrease in the number of representatives. It keeps the House within a reasonable limit.' And the Honourable A. T. Galt, in a speech delivered in Sherbrooke on November 23, 1864, shortly after the termination of the Quebec Conference, and reported in the Montreal *Gazette* of that time, declared: 'The House would never have less than one hundred and ninety-four members.'

Representation by population while accepted as a guiding principle in fixing the representation of each province in the Dominion Parliament, was intended to be made subservient to the right of each colony to *adequate* representation in view of its surrender of a large measure of self-government. In consideration of surrendering its

independent colonial status, each colony was entitled to such a representation in the Federal Parliament as would be sufficient to guard that right.

A self-governing colony was something more than the number of its inhabitants.

The principle that population was not the sole consideration in fixing representation was recognized in the cases of Manitoba, British Columbia and Prince Edward Island when these provinces respectively entered the Union.

Manitoba with a population less than one unit of representation was given four, with a provision that after the census of 1881 its representation should be 'readjusted' under the terms of the British North America Act.

The census of 1881 showed a population of 62,260, which would have entitled it to three members, but it was 'readjusted' up to five.

British Columbia with a white population of less than 10,000, and a total population not exceeding 40,000 when it entered Confederation, in 1871, was given six members as an irreducible medium. In 1881 it had but two units of representation, and in 1891 four units.

Prince Edward Island obtained six members upon entering Confederation with but five units of population, passed the census of 1881 in the same condition but, not being safeguarded as was British Columbia, was reduced to a representation of five after the census of 1891.

It may be said that in each of these cases there was the expectation of such increase as would in time bring all the provinces upon the basis of representation allowed upon entering Confederation. Admitting such to be the case, it goes to show that the splendid optimists who made Confederation thought only of readjustment upwards and not downwards.

When the Maritime Provinces entered Confederation it was impossible for them to have forseen the extent and effect of the development of western Canada. They never imagined that in the days to come the growth of the west would strip them of their influence in the councils of the nation. Though the times were not over prosperous they contributed their share to the cost of purchasing the lands from the Hudson Bay Company and equipping them for settlement; bore their part of the cost to Canada of the Canadian Pacific railway and all the other vast expenditures that went to link together the far-flung provinces of Canada, and to convert the wilderness into thriving communities out of which have developed the splendid prairie provinces of to-day.

But most of all, they gave their sons and daughters to the west. From Manitoba to the Pacific coast the Maritime provinces people form an important element of the population who have played no small part in the development of these new lands.

Theirs also is a potent influence in binding together the east and the west with bonds of sympathy 'light as air though strong as iron.'

All these contributions the Maritime provinces have cheerfully made in the interests of Canadian unity and progress, but they feel it a cruel exaction of the strict letter of the bond which will impose a lasting penalty upon them for the sacrifices they have made in such a cause.

Another ground upon which the Maritime provinces claim consideration in respect of their representation is that they had as good a right to share in the public demesne of Canada as had those provinces upon which it was bestowed. It is true that the Maritime provinces have claimed a share of the value of these lands, but that does not touch the question now under consideration. The territories added out of the public demesne will increase to a limit not now possible of calculation the representation of these provinces in the Federal Parliament.

The Maritime provinces, situate as they are, could not well obtain their share in actual territory, but it is surely just that they should not by reason of the aggrandizement of the provinces more favourably situate be compelled to accept a representation decreased not only relatively but absolutely in the Canadian Parliament.

There is surely something wrong with a system of representation which penalizes some provinces for the sacrifices they have made in sending their children and their means to upbuild the other parts of the Dominion, and which would fail to make any special allowance in their representation in the Canadian Parliament in respect of their isolated position which prevents them from enlarging their bounds out of the public lands of Canada.

Prior to the Act of 1912 the representation of Quebec was fixed at 65, but now in the added territory additional representation will be given under the terms of the British North America Act. This may be few or many, but it introduces in that province the same principle now contended for.

This is the status of British Columbia as well, and it is submitted that each province in the Confederation might well be placed upon the basis of a fixed minimum of representation.

For the reasons above set forth, it is claimed that the representation of the Maritime provinces in the House of Commons should be restored to the number allowed upon entering Confederation upon terms that the same may not in future be subject to reduction below that number.

Dated at Ottawa, this 27th day of October, A.D. 1913.

RETURN

(119)

To an Address of the House of Commons, dated the 2nd February, 1914, for a copy of the proceedings and resolutions adopted at the last Interprovincial Conference.

LOUIS CODERRE,
Secretary of State.

Quebec, November 6, 1913.

Right Honourable R. L. Borden, LL.D., K.C.,
Prime Minister of Canada,
Ottawa.

Sir,—In conformity with the request made by you and pursuant to a resolution of the Interprovincial Conference, I beg to send you, under the same cover, an extract of the deliberations of a conference of the representatives of the several provinces, held in Ottawa on the 27th, 28th and 29th October last.

I have the honour to be, sir,
Your obedient servant,

(Sgd) CHARLES LANCLOT,
Secretary.

Extracts *from the Deliberations of the Conferences of the representatives of the several Provinces of Canada, held at Ottawa, on the 27th, 28th and 29th October, 1913.*

Were present:—

For Ontario—

Hon. Sir James Whitney, K.C.M.G., Premier.
Hon. J. J. Foy, Attorney General.
Hon. I. B. Lucas, Provincial Treasurer.

For Quebec—

Hon. Sir Lomer Gouin, K.C.M.G., Premier.
Hon. L. A. Taschereau, Minister of Public Works and Labour.
Hon. J. E. Caron, Minister of Agriculture and Roads.
Hon. P. S. G. Mackenzie, Provincial Treasurer.

For Nova Scotia—

Hon. G. H. Murray, Premier.
Hon. O. T. Daniels, Attorney General.
Hon. R. M. McGregor, Member Provincial Executive Council.

For New Brunswick—

Hon. J. K. Fleming, Premier.
Hon. W. C. H. Grimmer, Attorney General.

For Prince Edward Island—

Hon. J. A. Matheson, Premier and Attorney General.
Hon. A. E. Arsenault, Member Provincial Executive Council.
Hon. W. Stewart, Member Provincial Executive Council.

For Manitoba—

Hon. Sir Rodmond Roblin, Premier.
Hon. James H. Howdon, Attorney General.

For British Columbia—

Hon. Sir Richard McBride, Premier.
Hon. William R. Ross, Minister of Lands.

For Saskatchewan—

Hon. Walter Scott, Premier.
Hon. J. A. Calder, Minister of Railways.
Hon. W. F. A. Turgeon, Attorney General and Provincial Secretary.

For Alberta—

Hon. Arthur L. Sifton, Premier.

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Resolved, That in the opinion of this Conference it is desirable that the Government of Canada be requested to consider the placing of the remuneration of the Lieutenant Governors on a basis more in accordance with present circumstances.

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Resolved, That in the opinion of this Conference, the Government of Canada be requested to have the necessary legislation passed to change the title of the head of the Executive of each Province so that in the future he be designated under the name of 'Governor' instead of 'Lieutenant Governor.'

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Whereas under the provisions of the British North America Act, 1867, and the various amendments thereto, the existing financial arrangements between the Government of the Dominion of Canada and the various provinces thereof are inadequate to provide a sufficiency of revenue to enable them effectively to provide for their expenditure, in consequence of the heavy and steadily increasing amounts required to be expended to maintain the efficiency of the services of their respective Governments, as by law provided, to promote the moral and material progress of the people.

Whereas the financial arrangements made at the time and since Confederation have never been regarded as final by the provinces.

Whereas, in 1867, the Provinces surrendered to Canada their Customs and Excise duties amounting to $11,580,968.25, and received in lieu thereof the sum of $2,227,942.11.

Whereas, in 1913 the total revenue from Customs and Excise was $135,312,143.67, of which the Provinces received only $10,281,042.56.

Be it therefore,—

Resolved, 1. That in the opinion of this Conference an additional subsidy equal to 10 per cent of the Customs and Excise duties collected by Canada from year to year should be granted to the Provinces, payable semi-annually in advance, in addition to all other subsidies to which they are now or may hereafter be entitled, under the reserve of the right of any province to submit to the Dominion Government memorandum in writing concerning any claim it may have to larger sums than those mentioned in this resolution, and without prejudice to any existing claims or demands of any province.

2. That this additional subsidy be paid to each province, as follows:—

(*a*) There shall be set aside out of such additional subsidy an amount sufficient to pay to each province a sum equal to 50 per cent of the amount now payable to each province for Government and Legislature.

(*b*) The balance of such additional subsidy shall be payable to each province according to its population as ascertained from time to time by the then last census.

3. That in the case of the Government of Canada concurring in the views of the Conference as expressed in the above resolutions, a measure should be submitted to the Parliament of Canada at the next session providing for payment of such increased subsidies and allowances as may be determined upon, pending an amendment to the British North America Act, if such amendment should be deemed necessary.

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Whereas by the Imperial Colonial Stock Act, 1900, the powers of Trustees in the United Kingdom under the Trustees Act, 1893, have been extended and provision made for the investment of trust funds in colonial stocks under regulations to be made by the Lords Commissioners of the Treasury.

And whereas the regulations in question were in due course promulgated by the Treasury, in the London *Gazette*, and are as follows:—

> 1. 'The Colony shall provide by legislation for the payment out of the revenues of the Colony of any sum which may become payable to stockholders under any judgment, decree, rule or order of a court in the United Kingdom.
>
> 2. 'The Colony shall satisfy the Imperial Treasury that adequate funds (as and when required) will be made available in the United Kingdom to meet such judgment, decree, rule or order.
>
> 3. 'The Colonial Government shall place on record a formal expression of opinion that any Colonial legislation which appears to the Imperial Government to alter any of the provisions affecting the stock to the injury of the stockholders, or to involve a departure from the original contract, in regard to the stock, would properly be disallowed.'

And whereas all or nearly all of the Self-Governing Colonies and most of the Crown Colonies, have taken advantage of the Act, and have passed the necessary legislation and have given the assurances that are required under the Treasury Regulations.

And whereas the financial position of the Colonies which have come under the provisions of the Act, has been much improved and their securities have obtained a wider market.

Whereas both as regards the prices realized by the Canadian provinces, on the original issue of their loans, as on the selling prices of their existing securities on the London market, other Colonies or dependencies of the Empire whether of equal or less importance in wealth or population are presently able to dispose of their issues at greater advantage, and their securities are quoted at much higher figures.

And whereas the Provinces of Canada by their Union have formed the Dominion of Canada, which is justly regarded as one of the most important portions of the British Empire.

And whereas the said Provinces of Canada have so far been unsuccessful in their endeavours to obtain for their stocks the advantages conferred by the Act of 1900, and they alone among the constituent parts of the Empire are, in consequence, prejudiced, and their financial interests adversely and seriously affected.

And whereas the securities of the Provinces of Canada are eligible for registration under the Colonial Stock Act, 1877, and amending Acts: and the necessary legislation can readily be passed to comply with the first two of the regulations that have been issued by the Treasury under the Colonial Stock Act of 1900.

And whereas the only difficulty in the way of extending the benefits of the Act of 1900 to the Provinces of Canada is found in the provisions of the third regulation.

And whereas it is stated to be held by the Imperial authorities that they have no direct right of disallowance so far as the legislation of the Provinces of Canada is concerned, and that the position in that respect, is therefore different to that obtaining in the case of the Colonies to which the provisions of the Act of 1900 have been applied.

And whereas under the British North America Act, the power of disallowance in relation to the legislation of the provinces is reserved to the Governor-General in Council; but the Provinces of Canada are, therefore, in a position to place on record a formal expression of opinion under the third of the regulations 'that any of its legislation which appears to the Dominion or Imperial Government to alter any of the provisions affecting the stock, to the injury of the stockholders or to involve a departure from the original contract in regard to the stock, would properly be disallowed by the Governor-General in Council,' or to take such other and further course as may be suggested with the view of meeting any objection.

And whereas if this assurance or formal expression of opinion is not deemed to be sufficient, the Provinces of Canada will be prepared to give favourable consideration to any suggestions that may be made by His Majesty's Government to the Dominion Government, in order that the Colonial Stock Act of 1900 may be extended to the stocks it may have already issued, or which may be issued in the future.

And whereas the Provinces of Canada cannot but believe that there is every disposition on the part of His Majesty's Government to extend to their stocks the benefits of the Act of 1900, if necessary and proper assurances are given in the spirit of the said Act, and of the regulations that have been promulgated under its provisions.

And whereas it also appears that under the provisions of the Imperial Statutes, known as the Irish Land Act, 1909, and the National Insurance Act, 1911, the trustees and commissioners appointed thereunder respectively are empowered to invest the purchase money and investments arising thereunder in any of the public stocks or funds or Government securities of any foreign government and in any securities in which trustees are for the time being, by law, empowered to invest trust funds, and that under the provisions of the said Acts investment in the securities of the Provinces of the Dominion is likewise excluded, the whole prejudicial to the interests and credit of the provinces.

Be it therefore resolved that in the opinion of this Conference that the authorities of the Dominion Government be requested to submit this statement to the Imperial Government in order that it may be brought formally to the notice of the Secretary of State for the Colonies for the consideration of the Government of His Majesty, with a view to the laws and regulations that have been made under the Colonial Stock Act of 1900 and the Irish Land Act, 1909, and the National Insurance Act, 1911, being applied—or if necessary amended, modified or extended to meet the circumstances, and permit of their being made applicable—to the securities of the Provinces of the Dominion of Canada.

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Resolved,—That in the opinion of this Conference, it is desirable that the postal regulations of Canada be amended so as to provide for the free carriage of all provincial public documents, both sessional and departmental.

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On the debate respecting representation of the provinces in the House of Commons, it was moved by the Hon. Mr. Fleming, seconded by the Hon. Mr. Matheson, that in the opinion of this Conference the representation granted to the Maritime Provinces at the time they entered Confederation should be restored and rendered irreducible.

This motion was withdrawn.

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It was moved by Hon. Mr. Fleming, seconded by Hon. Mr. Matheson:—

That this Conference would favour and request that an amendment be sought to the British North America Act providing an irreducible minimum in the representation of the Maritime Provinces, and that the irreducible number of representatives be as follows: for Nova Scotia, eighteen; for New Brunswick, thirteen; and for Prince Edward Island, six.

This motion was withdrawn.

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It was then moved by Hon. Mr. Matheson, seconded by Hon. Mr. Fleming:—

That this Conference having heard and considered the special claim of Prince Edward Island for the restoration to that province of its original six members in the House of Commons as a minimum, deems that it should receive the favourable consideration of the Government and Parliament of Canada.

A debate having arisen thereon, it was

Resolved,—That this Conference expresses the opinion that, not representing the provinces for the purposes of this matter of representation, it declines to take any action in regard to it.

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It was moved by Hon. Mr. Scott, seconded by Hon. Mr. Sifton:—

That in the opinion of this Conference any action contemplated by the Dominion Government towards assisting in the carrying on of provincial works or obligations should take the form of an increase in the subsidies payable to the provinces by the Dominion under the terms of the B.N.A. Act.

A debate having arisen thereon, the Conference was adjourned till the afternoon.

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The debate on Hon. Mr. Scott's motion concerning any action contemplated by the Dominion Government towards assisting in the carrying on of provincial works and obligations, was resumed; and in view of the divergence of opinion which seemed to prevail amongst the members of the Conference regarding the subject matter of the motion, the mover and seconder considered it unadvisable to press the same to a vote and asked leave to have the same withdrawn. Leave to withdraw was in consequence granted.

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Resolved, That the contention of the provinces concerning the incorporation of companies having been upheld by the Supreme Court of Canada, after a reference to this tribunal at the instance of the Dominion, this Conference expresses the firm belief that the decision should be considered as final and conclusive, especially in view of the far reaching and disturbing impression created in the public mind by the doubt cast upon the powers of the legislatures in regard to this matter.

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Resolved, That the secretary be instructed to transmit to the Right Hon. Mr. Borden copies of the resolutions which have been adopted by this Conference.

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Resolved, That the members of this Conference desire to place on record their hearty appreciation of the attention shown them by the Prime Minister of Canada and his colleagues.

(Sgd.) CHARLES LANGTOT,

Secretary.

REPORT

OF THE

National Transcontinental Railway

Investigating Commission

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY THE KING'S PRINTER TO HIS MOST EXCELLENT MAJESTY.
1914

[No. 123—1914.]

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PARDEE, H. M., Division Engineer, Division 7, District C. D. 210
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YOUNGMAN, W., Resident Engineer, Residency 7, District F. 141

February 11, 1914.

Hon. Frank Cochrane, P.C.,
Minister of Railways and Canals,
Ottawa, Ontario.

Sir,—We have the honour herewith to deliver to you for transmission to His Royal Highness the Governor General of Canada the report of the Commission appointed to investigate the construction of the National Transcontinental Railway.

Yours respectfully,

GEO. LYNCH-STAUNTON,
Chairman.

F. P. GUTELIUS,
Commissioner.

To Field Marshal His Royal Highness Prince Arthur William Patrick Albert, Duke of Connaught and of Strathearn, K.G., K.T., K.P., etc., etc., Governor General of Canada.

MAY IT PLEASE YOUR ROYAL HIGHNESS:

The undersigned have the honour to present to Your Royal Highness the Report of the Commission appointed on the 29th day of January, 1912, to investigate the building of the Transcontinental Railway.

GEO. LYNCH-STAUNTON,
Chairman,

F. P. GUTELIUS,
Commissioner.

OTTAWA, February 11, 1914.

Report of National Transcontinental Railway Investigating Commission.

By Royal Commission dated the 29th day of January, 1912, Your Royal Highness was pleased to appoint the undersigned Commission to investigate the building of the Transcontinental railway. In the performance of the duties imposed upon us we have familiarized ourselves with the work and its history, insofar as possible from an examination of the contracts, estimates, plans and correspondence in the office of the Commission at Ottawa, and by making a personal inspection of all the work done prior to the first day of October, 1911, between Moncton and Winnipeg.

We were attended over each section by the engineers and other officials who had charge of or were familiar with their particular parts of the line which we were from time to time examining, and we took the evidence of these persons, which is appended to the report, either on the ground or immediately after each inspection.

The report is based in the main on the evidence of the persons who had charge of the building of the railway, and on what we ourselves have seen, and we feel that we have thoroughly familiarized ourselves with the facts and circumstances on which we base the findings and opinions herein contained.

The Government of Canada made an agreement on the 29th July, 1903, with the representatives of the proposed Grand Trunk Pacific Railway, which was ratified by an Act of Parliament (3 Edward VII, Chapter 71), whereby the Government agreed to construct a line of single track railway from Moncton, in the province of New Brunswick, to Winnipeg, in the province of Manitoba, according to such plans and specifications as the Government should thereafter determine, to be known as the Eastern division of the National Transcontinental railway. After its construction the road was to be leased to the Grand Trunk Pacific Railway Company, which was to operate and maintain the same for a period of fifty years, paying as a rental therefor three per cent per annum on the cost of construction for the last forty-three years of the term of fifty years. Four commissioners were appointed by the Government to manage the construction of the railway.

CONSTITUTION OF THE COMMISSION.

Until the appointment of Major R. W. Leonard, in the autumn of 1911, no member of the Commission had any experience or knowledge of railway building or operation.

DESIGN OF THE RAILWAY.

The railway was designed, *i.e.*, its standard was decided on, without any knowledge as to whether it was suitable for the country, and on assumptions as to business expected which were unwarranted.

(See page 13.)

PRELIMINARY ESTIMATES OF COST.

When the Bill for the construction of the railway was being discussed in the House of Commons, the Honorable Mr. Fielding, then Minister of Finance, stated that he had been advised by experienced railway men that the cost of such a railway from Quebec to Winnipeg, 1,344 miles, would be $35,000 per mile, or $47,040,000
and from Moncton to Quebec, 460 miles at $31,250 per mile, or 14,375,000

Total..... $61,415,000

(See page 17.)

ACTUAL COST ON WHICH INTEREST IS TO BE PAID BY LESSEES.

Contracts were let for most of the road, and on September 30, 1911, there had already been spent $109,000,000, and Mr. Gordon Grant, the chief engineer, then estimated that when completed the road will, exclusive of interest, have cost $161,300,000.

If the road is completed at this cost by the end of 1914 the Grand Trunk Pacific will commence to pay rent at the beginning of 1922 on this amount with $18,700,000 interest added, making an annual rental of $5,400,000, or about $14,800 a day. (See page 18.)

ACTUAL COST TO THE COUNTRY.

Assuming that the Grand Trunk Pacific Railway Company will commence to pay interest on the cost of construction in 1922, the road will have cost the country for principal and interest $234,651,521. This amount has been arrived at by calculating the interest on the amounts expended during each year from the end of that year up to the end of 1921. (Page 19.)

METHOD OF INVITING TENDERS.

The rules adopted by the Commission in advertising for tenders, the unlimited security required to be furnished by the contractors, and the proposal to let the work for the most part in unreasonably large sections, resulted in only five contractors tendering for 806 miles of the railway, and eleven contracting firms secured all the work and sub-let it to upwards of 100 sub-contractors, who, had the work been divided into reasonably large sections and the security required in other governmental contracts only been exacted, would have in all probability competed in the bidding. As an indication of the handsome profits derived by these eleven firms, it appears that they were paid $8,800,000 in profits for that part of their work which they let to subcontractors. (See page 19.)

METHOD OF AWARDING CONTRACTS.

The contracts for sections No. 8, 150 miles; No. 18, 75 miles; and No. 21, 245 miles; which are estimated to cost, No. 8, $5,011,000; No. 18, $2,100,000, and No. 21, $13,000,000, were not let to the lowest tenderers, and we believe that in at least two or three cases advance information as to estimated quantities was made use of by the successful tenderers. Our reasons for these statements are fully given in that part of this report referring to these contracts. Contracts Nos. 16 and 17, M. P. and J. T. Davis, were improperly allowed to sell at a profit to themselves of $740,000. (Page 19.)

CLASSIFICATION.

The classification prescribed in the contracts was ignored and contractors were overpaid $3,300,000 on improper classification.

(1) *Solid Rock.*

A new sub-classification of solid rock, called "Assembled rock," which is described as "fragments of rock cemented together by interstitial material" was improperly introduced after the contracts were signed, and though $1,835,051 was paid for "assembled rock," there is no material on the line which can possibly be marshalled under that head, and that material which was described as "assembled rock" should have been classified as "loose rock" or as common excavation.

(2) *Ploughable Clay.*

About 1,317,940 yards of ploughable clay on contracts 14, 15 and 16 in New Ontario, which should have been classified as common excavation, were classified as loose rock, resulting in a loss of $750,000.

(3) *Overbreak.*

Overbreak, i.e., rock taken out beyond the section, should never exceed 20 per cent of the intended excavation. On this line it exceeded 40 per cent. The engineers first certified that all overbreak, amounting to $4,084,843.78 should be paid for. The arbitrators reduced their returns by $500,000. We find that that reduction should have been $677,866.59 more than it was. (See page 69.)

GRADES.

Had momentum grades been adopted, as is the usual practice in high-class modern railway construction, they would have in no way impaired the usefulness of the railway, or increased the cost of operation, or reduced its hauling capacity, and $6,200,000 might and should have been saved. (See page 71.)

ALIGNMENT.

Had sharper curves, i.e., curves of a shorter radius than those actually used, been allowed they would not have impaired the usefulness or increased the cost of

operation or reduced the hauling capacity of the road, and $2,400,000 might and should have been saved. (See page 73.)

BRIDGES.

Had wooden trestles been used instead of train fill and steel structures, as was done by the Grand Trunk Pacific on its portion of the line, and as is allowed in the best modern railway construction, they might have been in course of time replaced by fill and steel structures and $2,947,227 thereby saved without impairing the usefulness or reducing the hauling capacity of the railway or increasing the cost of operation. (See page 74).

TRAIN FILLING.

The Commission had an offer from the Grand Trunk Pacific to fill wooden trestles at the rate of 25 cents per cubic yard. Had the Commission made such an agreement to do the train filling after the road was opened, $3,250,000 would have been saved in addition to that included under the last heading. (See page 74.)

BUILDINGS.

The sixteen engine houses to be constructed were considered of such small importance that the contractors were not required, although the attention of the Commission was drawn to the omission, to name a price either in bulk or in detail for their construction, but were given the contractors on prices afterwards to be arranged. In consequence of this, these buildings cost $800,000 more than they otherwise would. In the opinion of this Commission, this was a direct violation of the statute, which clearly requires that contracts be given on tenders which name the price at which the work is to be done. (See page 80.)

STATIONS.

There were sixteen station buildings at different points on the line, each with office accommodation for a staff sufficient to operate 500 miles of railway. Four such might have been justifiable, but no more. These station buildings average $22,000 each, and $204,000 might have been saved here had care been taken to only provide stations with ample accommodation for the operation of the road. (See page 80.)

REDDIT STATIONS.

At Reddit, which is in a wilderness, a station ample in every respect for any possible purpose was built but because it did not comply with the extravagant Grand Trunk Pacific design a second station was built beside it at a cost of $22,112, to the profit of the contractor alone. (See page 80.)

FREIGHT SHEDS, &c.

The design for freight sheds, bunk houses, storehouses, ice-houses, were on an unnecessarily extravagant scale, and there were far too many of them built. Had the design been within reasonable limits and had they been built only where they were useful $300,000 would have been saved. (See page 80.)

CAP ROUGE VIADUCT.

On this viaduct, which is near Quebec, had the piers been built with ordinary open caissons, as they should and could have been the same result would have been had at $250,000 less cost. (See page 88.)

CHAUDIERE CUT.

This cut is about one mile east of the Quebec bridge on the south side of the St. Lawrence river. Notwithstanding the fact that the approach to the Quebec bridge on both sides is over a one per cent grade, the Commission spent $351,000 to preserve the low gradient within one mile of the Quebec Bridge. (See page 90.)

COAL CREEK FILL.

An embankment was built here containing over half a million cubic yards of material of which 200,000 yards was solid rock borrow. The total cost of the fill and arch was $398,000.

If the Commission had built a wooden trestle there they would have saved in seven years $413,000 and could have then built the embankment and the arch and have been $239,000 ahead. (See page 92.)

CHIPMAN GRADE.

On the New Brunswick section there are at mileage 146 and 174 two pusher grades thirteen miles and eleven miles in length respectively, where the grade is 1.10 per cent, yet at Chipman, rather than allow the grade to be increased one tenth per cent the Commissioners spent $178,224. (See page 97.)

LITTLE SALMON RIVER VIADUCT.

This large steel structure, containing 14,000,000 pounds of steel, was erected across the Little Salmon River valley in New Brunswick, at a cost of over $800,000.

If pusher grades had been used in locating this crossing $1,750,000 would have been saved in a distance of 10 miles, and the interest on this sum would in 20 years have paid for a revision of the line if the traffic then warranted it. (See page 98.)

LA TUQUE.

Contrary to the recommendation of the engineers the Government, because it had been stated that this was to be a 0.4 per cent railway, refused to allow a pusher grade to be put in at La Tuque where everybody admitted it should be used, and thereby, for no purpose, wasted $1,000,000. (See page 100.)

SECOND SIDINGS.

The original plan was to build along the whole line at seven mile intervals two sidings of 3,500 feet and 3,235 feet in length, to accommodate two 80 car trains. After having spent $374,500 on the second sidings, the Commission realized that this was an unwarranted expenditure and abandoned the two sidings plan and built only one. (See page 102.)

WEIGHT OF RAILS IN SIDINGS.

On the line there are 367 miles of sidings and yard tracks which are equipped with new 80 pound rails. This was an unjustifiable expenditure as rails of 65 pounds would have answered the purpose equally well, and $340,500 was wasted by not using the lighter rail. (See page 104.)

DOUBLE-TRACKING.

The statute provided that the line should be a single track railway with necessary turn-outs and switches. The Commission, exceeding their authority, double-tracked six miles at an additional expense of $679,692.00. (See page 105.)

TWO PRICES FOR ONE HANDLING OF MATERIAL.

Certain contractors were by a wrong construction of the contract paid two prices for one handling of material. The waste under this head amounted to $75,284.83. (See page 108.)

HEIGHT OF EMBANKMENTS.

On contracts 14, 15 and 16 we find that the extra height of embankments beyond what was necessary to stay within the maximum gradients resulted in unnecessary expenditure of $150,000. (See page 110.)

PILING FOR FOUNDATIONS.

The contracts provided that piles delivered on the ground should be paid for at so much per foot, and that piles driven should be paid for at another price per foot. The contract was unreasonably interpreted to mean that for piles driven the contractor was to be paid for piles delivered and after he drove them he was paid a second time for the piles plus the additional price per foot for driving them. The contractors on contract 9 were in this way overpaid $33,900. (See page 110.)

DRAINING BORROW PITS.

One hundred and sixty-six thousand nine hundred dollars was spent in draining borrow pits, a useless and unjustifiable expenditure. (See page 112.)

NARCISSE DELISLE, HONORE PERRON, FARM CROSSINGS.

The Commission wasted $21,617 changing a six-foot culvert into an under farm crossing for the use of the first man who had given them an option on his whole farm, which is 59 miles west of Quebec, for $3,500, and a further $21,600 in a like case at Honore Perron's farm next to Delisle's. (See page 113.)

FENCES.

Sixty-one thousand three hundred and eighty dollars was spent on unnecessary fences. (See page 117.)

QUEBEC RIGHT OF WAY.—R. R. BERGEVIN.

The chairman of the Commission paid R. Bergevin, of Quebec, $7,950 just after the election of 1911 on a pretended claim for damages to a certain leasehold property. This was a most improper payment and cannot be justified in law or in morals. (See page 118.)

RIVER DU SUD AND CREEK A'SHEA.

The two streams, the River du Sud, 60 miles east of Quebec, and Creek A'Shea, 160 miles west of Quebec, were approached with fills and crossed with 30 and 40-foot concrete arches respectively. Had steel been used, a saving of $234,000 would and should have been made. (See page 121.)

TRANSCONA SHOPS.

The country has been committed to the expenditure of $4,500,000 for the erection and equipment of the Transcona shops at Winnipeg, which, in our opinion, are not authorized by law and which are, in any event, twice as large as are required for the purposes of the Eastern division. (See page 121.)

WINNIPEG ENTRANCE.

Large sums of money could have been saved if ordinary business methods had been adopted in negotiating for and acquiring the entrance to Winnipeg at the proper time. (See page 134.)

DRAINAGE OF ROAD CROSSINGS.

The use of cast-iron pipe instead of concrete pipe is the usual practice to carry water from the ditches along the line under highways and farm crossings accounts for $12,072.15 unnecessary expenditure. (See page 136.)

WATER SUPPLY.

Sixty-two thousand two hundred and eighty dollars was lost by installing gravity water supplies at Pangburn, Beaver Brook, Bluebell and St. Leonard, in District A, New Brunswick, instead of pumping plants. (See page 138.)

PUMPS.

Forty-five thousand six hundred dollars was lost by the installation of fifty-seven gasoline pumping plants instead of steam pumping plants. (See page 138.)

NEW BRUNSWICK SECTION.

Large sums of money in interest have been lost by the premature construction of the New Brunswick section of the railway. In our opinion this section should not have been constructed at all. If one-third of the money had been expended on the Intercolonial railway it would have provided all the trunk line facilities for the province of New Brunswick which would be required for very many years. (See page 138.)

CONCLUSION.

We find that the Transcontinental Railway Commission, the Grand Trunk Pacific Railway, and those having charge of the construction of the railway did not consider it desirable or necessary to practise or encourage economy in the construction of this road.

We find that without including the money which was unnecessarily expended in building the railway east of the St. Lawrence river $40,000,000 at least was needlessly expended in the building of this road.

In the following papers will be found a detailed statement respecting each of the subjects treated herein, and we also include the evidence taken and the documents referred to in this report.

Design of the Railway.

The cost of a railway depends principally upon its design.

The principal feature in the design of a railway through broken country is the gradient, for upon it depends the length of sidings and the size of yards. It controls the curvature; it decides the depth of cuttings and the height of fills, and in a broken country the cost is high or low according to the gradient decided on by the projectors.

It is, therefore, of first importance where cost is to be reckoned with that reliable information as to the character of the country through which the railway is to be built should be obtained by reconnaissance surveys before the gradients and curvature are decided upon. Railroads are built for commercial purposes and "cost of construction and operation" of one class of railway may be by the topographical conditions of the country so great as to prevent the carrying of the traffic which will come over that road being carried at reasonable rates unless the road is to be operated at a continuous loss.

The reason for building the National Transcontinental railway was to afford to the people of Canada increased and cheaper transportation facilities, and that being the object it must be evident that the expenditure must not for any reasons be so great as to require the imposition of such tolls in order to pay interest upon the capital expenditure as will prevent the operating company affording reasonable rates to the public.

An examination of the National Transcontinental Railway Act and of the Grand Trunk Pacific Railway Acts makes it quite clear that it was expected and intended by Parliament that whatever class of railway should be built it would be one on which the capital expenditure would not be so great as to make it unreasonable to expect the operating company to pay the statutory rent of 3 per cent on its entire cost and afford reasonable rates to the public and if a railway was designed which must necessarily cost more that design was not authorized and was contrary to the spirit of the legislation and the intention of Parliament.

Assuming therefore that the Government intended to carry out the will of Parliament, that is, to build a road upon which the Grand Trunk Pacific could afford to pay 3 per cent on the "cost of construction" it was its duty and that of the Commission, before they laid down a hard and fast rule for the guidance of those responsible for the building of the road, to have had made a reconnaissance survey to guide it in its choice of a design for this railway. As will be seen, the Government committed the country to the construction of this railway with grades of 0.4 per cent against east bound and 0.6 per cent against west bound traffics with maximum curves not to exceed 6 degrees without knowing whether such gradient and curvature fitted the country, without any further information than the opinion given by Mr. Schreiber of the cost of a totally different railway and the casual assurance from the Minister of Finance that "from other experienced railway men" he had learned that $31,250 per mile from Quebec to Moncton and $35,000 per mile from Quebec to Winnipeg was a most liberal one.

Having decided upon the design the Commission proceeded to find a country to fit the design.

The engineers sent out to locate a line were, as is usual, furnished with tables of figures called "Tables for equating value of grades and curvature." These tables are always based upon the business expected over the line and are to guide the engineers in locating the line through difficult country. For example, an engineer is confronted with the question as to whether he should go around a mountain, or tunnel or cut through to shorten the track. He knows that it will cost much less to build around the mountain. The tables will tell him the cost of operating the trains over each alternative route and so inform him as to whether the lesser cost of operating through the mountain will or will not be sufficient to justify the larger expenditure of passing through the mountain or not, and as these tables indicate he will decide, or it may be that between two points both on the same level there may intervene a succession of hills through which he may wish to run his road on the level. It will palpably be cheaper to have succession of grades crossing these hills, but it may be that operating expenses will be thereby so much increased that it will be better business to adopt the more expensive one of a level road through the whole section. It is therefore of essential importance that these tables be founded, not on utopian hopes, but rather on prudent assumptions of the business reasonable to be expected. It may seem incredible, but it is the fact that it was assumed that the road would at once receive the maximum business it was possible to carry over a single-track low-grade road. That there was an entire lack of business along the line from Winnipeg to Quebec and from Quebec to Moncton, or that this was a trunk line with no feeders does not seem to have occurred to those who made these tables.

The original estimate was as has been said made by Mr. Collingwood Schreiber, consulting engineer of the Government, who in reply to an inquiry from the Hon. W. S. Fielding, Minister of Finance, stated that a line which would comply with the Government subsidy specifications, that is one with grades up to 1 per cent, curves up to 10 degrees (p. 443), and on which would be used wooden trestles, 60-pound rails, and which could be improved as traffic requirements warranted, could be constructed between the Quebec bridge and Winnipeg for $28,000 per mile, and between the Quebec bridge and Moncton for $25,000 per mile.

This estimate was given by the Hon. Mr. Fielding to Parliament. (See Hansard, 1903, vol. IV, column 8588). In the course of the debate, Mr. J. Charlton, then member for North Norfolk, suggested that instead of building a road as described by Mr. Schreiber, one with grades of only 0.4 per cent should be built. His estimate for such railway, given in Hansard, vol. IV, 1903, column 8505, was $30,000 per mile for the whole distance between Winnipeg and Moncton, at a total of $54,690,000.

Knowing that his estimate was based on 1 per cent grades allowing 10 degree curves, the Minister of Finance said (Hansard, vol. IV, 1903, column 8588):—

> "I have made an estimate of $25,000 per mile for one part (Moncton to Quebec) and $28,000 per mile for the other part (Quebec to Winnipeg), which estimate is backed by the reputation of an engineer of standing. But, if we are to have the high grade—perhaps I should say low grade—road called for by my hon. friend from North Norfolk (Mr. Charlton) perhaps these estimates are not high enough.
>
> "I propose to add 25 per cent to the first estimate of the cost of construction of the Eastern division, and so add 25 per cent to the present value of the seven years' interest of that portion of the road. This is an equivalent to an advance on the cost of from $25,000 to $31,250 per mile for one part, and from $28,000 to $35,000 for the other part. This is a pretty liberal estimate and ought to build even the fine road called for by my hon. friend from Norfolk (Mr. Charlton)."

Taking Mr. Charlton's 378 miles east of Quebec bridge at Mr. Fielding's estimate of $31,250 per mile, and Mr. Charlton's 1,435 miles west of Quebec bridge at $35,000 (Mr. Fielding's estimate) we find the above estimate is increased to $62,037,500, which appears to be the largest estimate prepared or suggested prior to the passage of the Acts and in consequence is the largest amount that the Government expected to pay when they entered upon this undertaking or made the contract with the Grand Trunk Pacific.

After the passage of the National Transcontinental Railway Act which was assented to October 24, 1903, the Government, on August 20, 1904, appointed the following commissioners:—Messrs. Fletcher B. Wade, K.C., chairman; Robert Reid, Alfred Brunet and Charles Young. Upon the death of Mr. Wade and the resignation of Mr. Brunet, the Government, on July 31, 1905, appointed Mr. S. N. Parent, K.C., chairman, to succeed Mr. Wade; and Mr. C. F. McIsaac in place of Mr. Brunet. On October 31, 1909, the Government appointed Mr. W. S. Calvert as Commissioner to succeed Mr. Reid, deceased, and on October 23, 1911, the present Government appointed Major R. W. Leonard as chairman and sole commissioner.

That the Government and the Commission settled on the design of the road before a reconnaissance survey had been made, simply guessing at its cost, clearly appears from the above and what follows.

On August 20, 1904, the Government appointed Mr. Hugh D. Lumsden chief engineer and upon his resignation, the Government, on July 17, 1909, appointed Mr. Gordon Grant chief engineer in his stead.

The instructions for field engineers were prepared by Mr. Butler and approved by the chief engineer and commissioners, as described in Mr. Lumsden's report for the year ending June 30, 1905. Under the heading of "Instructions to Engineers" he says:—

> "District engineers were furnished with printed instructions for their guidance and for that of the engineers in charge of parties under them, giving full particulars as to their various duties. They were also instructed to adhere to grades not exceeding 0.4 feet per 100 adverse to eastbound, or 0.5 adverse to westbound traffic, though in regard to the last mentioned, this has been changed to 0.6 per 100 in one or two exceptional cases, the maximum curvature was limited to 4 degrees."

We also find in the Book of Instructions, which was issued and revised in January, 1907, page 46. (See exhibit No. 1):—

> "The maximum grade rising eastwardly on a tangent will be 0.40 per cent, rising westerly the maximum grade will be 0.60 per cent."

Page 38, under the heading "Curvature":—

> "The maximum curve on a level shall not exceed 6 degrees."

The Commission has not been able to learn how the Minister of Finance came to his decision to add 25 per cent to the cost of a one per cent railway to arrive at the estimate of the cost of a four-tenths per cent railway through the same district (p. 444) and Mr. Schreiber advises us that he did not concur in any such estimate.

In addition to the limiting instructions to field engineers contained in the Book of Instructions, the Chief Engineer issued drawing No. 59, table of values for equating distance, rise and fall and curvature, etc., above referred to. (See exhibit No. 2.) These values were taken from various engineering literature which treats

particularly of grade revision and alignment, and betterment of existing railways where the volume of traffic is developed and the cost of operation accurately known, which items form the basis of careful, accurate and minute calculations.

In order to utilize these modern values of distance, rise and fall and curvature, it was necessary, as we have said, for the Chief Engineer to assume a volume of business and costs for a basis on the National Transcontinental railway. The volume of business assumed was (see exhibit No. 3) :—

20 daily trains between Quebec and Moncton, 600 cars, east and west
20 " " " Graham and Winnipeg, 600 cars, east and west.
12 " " " Quebec and Graham, 360 cars east and west.
Assumed cost per train mile, $1.

The volume of traffic assumed is double the present tonnage of the Canadian Pacific Railway Company's transcontinental line, and it is the full capacity of a low grade single track railway.

The cost per train mile assumed is two-thirds of actual train mile costs on other railways where trains are only half as long and where fuel is several dollars less per ton in cost.

With these erroneous assumptions as the foundation of these calculations, the results of the calculations are equally erroneous and their erroneous results were given to the field engineers for guidance.

In the application of these distance values, which requires a comparison, we might take the Canadian Pacific railway and Intercolonial railway.

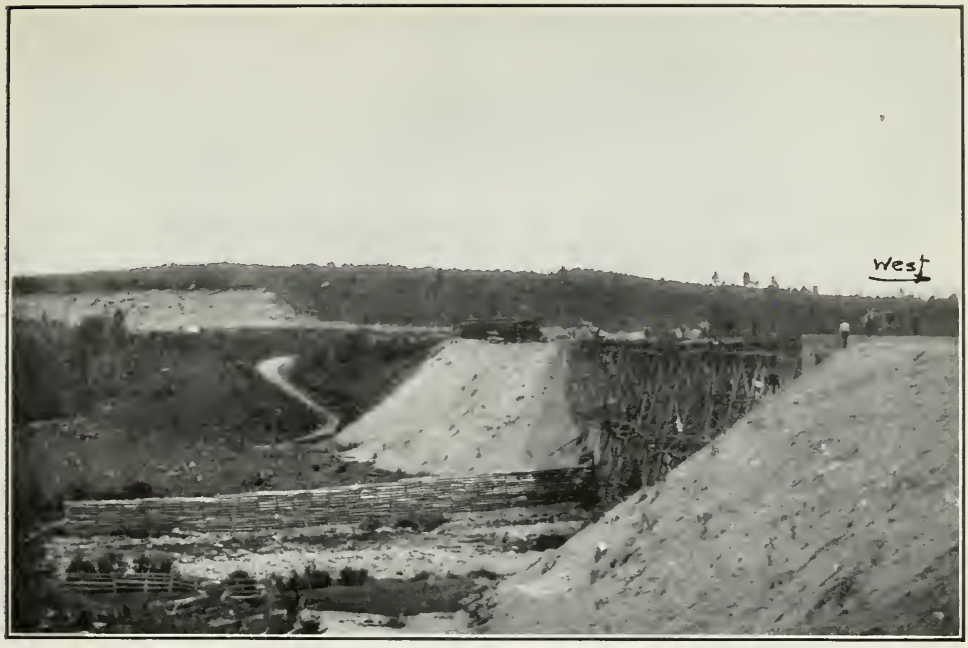
Winnipeg to Moncton, 2,000 miles, say it cost $50,000 per mile. Then to shorten this line to 1,800 miles would permit of expending 200 by $184,000 or $36,800,000 on account of this shortening, or $20,000 per mile for 1,800 miles.

Thus the engineers on location were given instructions which allowed them a latitude equal to about $20,000 for each and every mile, which instructions were concurred in by the Grand Trunk Pacific Railway Company. (See exhibit No. 3.)

We are unable without detail surveys to say how much money was expended in consequence of these instructions, but the effect of such latitude was enough to induce them to locate as near straight and level as possible, regardless of cost.

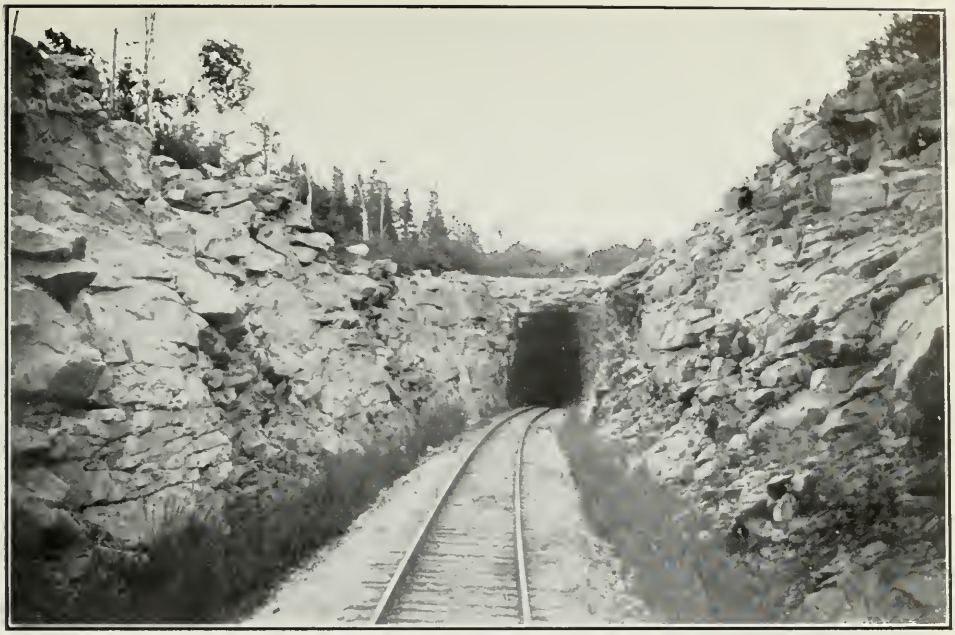
The first real information in connection with the high cost of this railway is given in Chief Engineer Lumsden's estimate of June 23, 1908, prepared for the Commissioners and available to the various parties interested, and although it was based on experience on the partial construction of 200 miles, it shows that the estimated cost of the entire line at that time was $114,400,000, and exclusive of the cost of the Winnipeg terminals, Quebec terminals, Quebec branch, or the shops at Transcona, proposed shops at Quebec and any double track. This estimate showed clearly that the railway would cost over 100 per cent more than the highest estimate given to Parliament, and the estimate was made at the time when only two-thirds of the line had been contracted for. The Hodgins Inquiry in 1908 also drew attention to the high cost of the railway in the matter of overclassification—the Lumsden Inquiry in 1910 should have shown that he resigned on account of the high cost of the railway—Mr. Young's Inquiry in 1908 showed that right of way was costing fabulous sums.

With all of this information before them, what did the Government, the Minister of Railways and Canals, the Grand Trunk Pacific Railway Company, the Commissioners, or the Chief Engineers do towards reducing the cost of the railway? We do not find any instructions or recommendations from the Government to the Commissioners or Minister of Railways and Canals to the Commissioners or the Chief Engineer, or protest from the Grand Trunk Pacific Railway Company or its

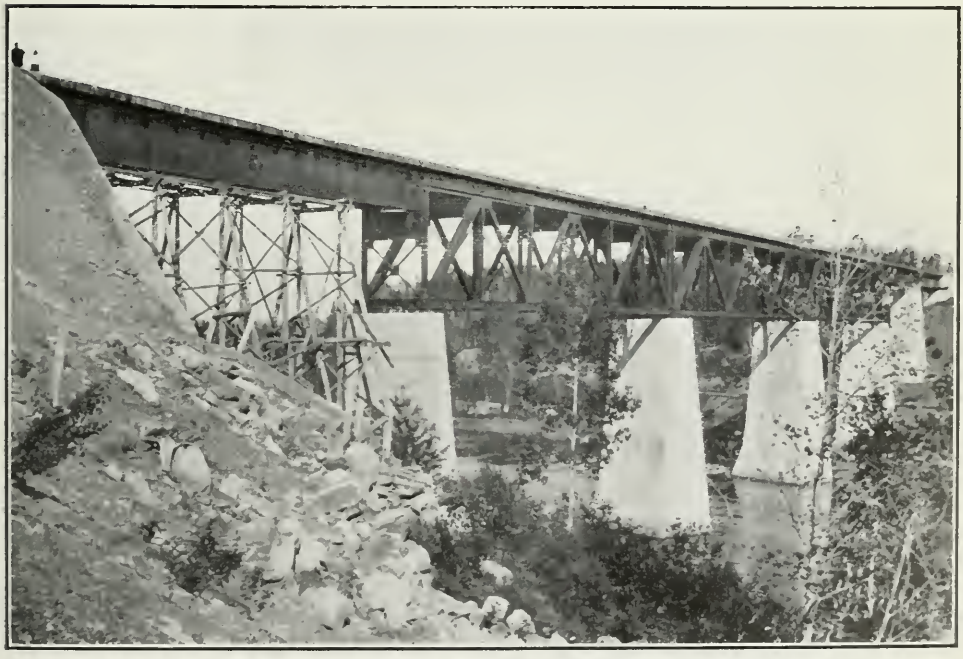


District B, Residency 11, Mileage 64.6. Crossing of Forchue du Pin River. Page 14.

District F, Residency 26, Mileage 86.5. Tunnel. Page 14.



District F, Residency 30, Mileage 128.6. Heavy Work. Page 16



District A, Mileage 165.5. Crossing of the Tobique River. Page 28.

Engineers for retrenchment except in the matter of classification and some minor detail matters to the Commissioners (see exhibit No. 15), or any recommendation or instructions from the Commissioners to the Chief Engineer or the Chief Engineer to the District Engineers, suggesting the advisability of economy or retrenchment on the remainder of the line, although it was then known that the road was going to cost more than double the amount estimated or the amount upon which the legislation was passed.

It is fair, therefore, to assume that the Government and the Grand Trunk Pacific Railway Company were satisfied with this forecast of the ultimate cost of the railway.

The instructions in the matter of gradients are generally in accord with the object of building this kind of railway, *i.e.*, to obtain cheap transportation, or in other words, low freight rates. But the Government and the Commission seem to have lost sight of the object in view and allowed the high-class feature to govern. They raised the cost of the railway by building most extravagant structures, spending millions of dollars on light curvature, unnecessarily taking out sags, building larger yards than were required, using heavy rails in sidings and yards and by many similar extravagances which did not affect the efficiency of the road. They seem not to have known that there was a maximum of expenditure beyond which if this road was to be used as a freight regulator or as a means of cheap transportation they could not go. The operating company must pay interest on the whole cost of construction or capital investment, and in our opinion the interest payable to the Government and the operating expenses taken together will be about the same as the dividends, interest charges and operating expenses of the competing roads which are only capitalized at from one-third to one-half as much per mile as is the National Transcontinental, and they will in consequence from the same freight and passenger rates be able to pay dividends to their shareholders easier than can the Grand Trunk Pacific pay the rental of 3 per cent on the "cost of construction."

In the following pages we have pointed out the most important of the extravagant and improper expenditures made by the Commission, but it is quite impossible for us within reasonable limits to touch upon them all, and there are numbers, each perhaps, relatively speaking, small, which in the aggregate amount to a very large sum of money and which, had they not been overshadowed by those of which we have treated, would have, in themselves, afforded reason for condemning the conduct of those responsible for their incurrence.

ESTIMATES AND COST OF RAILWAY.

We reproduce the various estimates which have been compiled at various times as to the cost of the National Transcontinental Railway. Based on the actual mileage between Moncton and Winnipeg, Mr. Collingwood Schreiber's original estimate of $25,000.00 per mile (see exhibit No. 4) from Moncton to Quebec, and $28,000.00 per mile from Quebec to Winnipeg, places the cost at $49,132,000. Mr. Fielding's addition of twenty-five per cent on account of the adoption of 0.4 per cent and 0.6 per cent gradients, raises this figure to $61,415,000 (see exhibit No. 5).

Mr. Lumsden's estimate of June 23, 1908, reaches the figure of $114,393,765, or a cost of $63,427 per mile (see exhibit No. 6).

The statement compiled by the Investigating Commission shows the cost of work done up to September 30, 1911, as being $109,172,090 (see exhibit No. 7).

This gross amount is in excess somewhat of the actual expenditure to that date, for the reason that the amounts due contractors for work done during the month of September are included in this sum, the statement showing the value of work done and not the actual expenditures per the accountant's book. In this statement

the general expenses have been distributed among the contracts on the mileage basis, and the same applies to the engineering expenses which have hitherto been charged under the heading of "districts" only. The items in the column of "engineering" cover location, transport and construction engineering.

"Grading" covers the excavation of cuttings, the forming of embankments, and all work consequent to the actual formation of the roadbed proper.

"Tracklaying" covers the purchase of rails and fastenings, switch material, ties, etc., and their installation.

"Bridges and culverts" covers the construction of all concrete arch or pipe culverts, together with the sub and superstructure of steel bridges and viaducts.

"Buildings" covers the various terminal structures, together with way stations, water tanks, etc.

"Right of way" covers the purchase of land required for right of way or station ground, together with the legal and other expenses properly chargeable under that heading.

Under "General Expenses" has been charged the cost of the Commission and their offices, and all head-quarter expenses, together with such minor items which are carried in the accounts under this charge.

In connection with the actual cost up to September 30, 1911, a further statement has been prepared showing the percentage of work completed to that date, compiled from the figures supplied by the Engineering department of the Transcontinental railway, from which will be noted the large amount of work still to be completed at that date, while the cost per mile of main line had reached the figure of $60,400.

An estimate prepared by Mr. Gordon Grant, dated April 18, 1913, places the cost of the completed railway at $161,307,800, or $89,300 per mile of main line. (See exhibit No. 8.)

Bearing in mind the average annual expenditures in the construction of this railway, and the total estimated cost of $161,307,800, with about $140,000,000 expended to date, it would appear that the end of the year 1914 should witness the completion of the through line of railway.

With the addition of the interest charges of three per cent, compounded annually in accordance with the Act, this cost, at the close of 1914, will total $180,000,000 or $99,500 per mile of main line, and upon this sum the rental charge to the Grand Trunk Pacific Railway Company will be based.

Under the terms of the Act, the three per cent rental charge will amount to $5,400,000 annually.

The cost of the National Transcontinental railway to the country is represented by the actual amount of money expended thereon, together with all interest charges payable on these sums.

The Act authorizing the construction of the railway provides that the rate of interest to be paid on any loan to be raised for this work, shall not exceed three and one-half per cent per annum. No loans have been issued by the Government under this Act, but money from revenue or outstanding issues has been used to defray the cost of construction. The records of the Finance Department show that after taking into consideration the figure these issues brought in the market, together with the charges in connection with placing them, the cost to the country in interest has been in excess of three and one-half per cent.

Taking Mr. Gordon Grant's estimate of the total cost, namely, $161,307,800, and assuming that the close of the year 1914 will see the completion of the road, and adding to this sum the compound interest charges at three and a half per cent from the date of the first $16,000,000 expenditure, in the year 1907 up to the close of the year 1921, which date we place as the termination of the seven-year period

during which the Grand Trunk Pacific Railway Company will receive the free use of the railway, the cost to the country, in capital and interest, will have been $234,651,521.

METHOD OF AWARDING THE CONTRACTS AND THE CONSEQUENCES

As there are several important matters considered under this head, an explanation of some length is necessary to their understanding.

For construction purposes, the 1806 miles of railway to be built was divided into 21 sections, the length and location of which will be seen on Exhibit No. 9.

The Commission furnished tender forms (see exhibit No. 10), which included a unit price schedule for various items of work and material connected with the intended contract and named everything which the engineers thought might enter into the construction of the railway in all its ramifications. The tenderers were required to fill in the schedule with their prices per yard, per pound, etc., for excavating and furnishing material.

Before advertising for tenders the engineers made an estimate for each section of the quantities and cost of the various materials and works named in schedule expected to be moved or provided, to be in a position when the tenders were received by placing the prices mentioned in the tenders opposite these items to determine who are the lowest tenderers. A glance at the schedule will make the above quite clear.

The contractors were required to tender on a general contract to do everything towards the building of the railway excepting the supplying of the steel for the tracks, the building of steel bridges, depots, shops, warehouses, freight and fuel sheds. For some reason unknown to us although the other buildings were excluded the engine houses and section houses along the whole line were specifically included in the general contract and, for some other reason quite impossible to understand, it is provided in the contract that the prices named should not apply to engine houses and section houses. That this was deliberately done appears from the fact that the secretary drew the attention of the Commissioners to the omission. Later (see "Buildings," page 80) we will have something more to say about this peculiarity of the contract, which practically allowed the contractors to fix their own prices.

It was open to the Commission to inform the tenderers of the quantities which the engineers estimated would be included in their contracts for the purpose of letting them know what the engineers thought as to the magnitude of the contract.

After consulting with Mr. Collingwood Schreiber, who strongly advised that estimates be not exhibited to the tenderers the Commissioners decided that they would not give to the contractors this information, and would furnish them only with profiles and plans. (Exhibit No. 11.)

The contractors themselves considered that the engineers' estimates were strictly private. (Page 494.)

Where the information is not open to all it is most unfair that any one tenderer should obtain "inside information" because, if he knew the quantities he might put a very high price against an item on which he knew the engineers had not estimated or had only estimated for a small quantity without any fear of the total under that head bulking so large in the entire price as to imperil his chances, or he might, as was done by Fauquier Bros., put a very low price on an item which the engineers had mistakenly estimated at a very large amount.

In awarding the general contracts the first step was to advertise for tenders. A copy of an advertisement is appended. (See exhibit No. 12.) In submitting their tenders the tenderers were to fill in in the column headed "rate" their price for each of the 103 items enumerated. The prices which the contractors were to

submit were to be based on their experience and their knowledge of the country together with the information gathered from the inspection of the plans and profiles, and it was a proper course for the Commissioners to refuse to supply the contractors with any estimate of the quantities or data concerning classification, because as Mr. Schreiber informed the Commissioners it was not the practice of the Department of Railways and Canals to exhibit estimates which were only approximate and often proved, as they did in this case, most inaccurate and misleading, and might be used by the contractor as a basis for claims for damages from misrepresentations.

After they had prepared their tender and filled in the schedule with their prices the various contractors handed their sealed tenders to the Secretary of the Commission, who placed them in a locked tender box. At the appointed time all the tenders were taken from the box and opened privately by the Commissioners in session and the prices in each tender were entered by them upon a sheet of paper. Each tender was given a number, and this number instead of the name of the contractor was entered on the form. These forms were then given to the engineers to money out, using their private estimates of the probable amount of each item as the assumed quantity required on the work which was being let. By using the same quantities for each item of the various tenders and multiplying them by the unit prices in the tenders and adding the amounts opposite each item a total tender price was obtained, and by comparing these totals the various tenders were arranged in their order from the highest to the lowest, and the contracts awarded accordingly.

The tenderers were required by the advertisement to accompany their tender with a marked cheque payable to the Commissioners for sums varying from $10,000 to $400,000 and to agree that in the event of their tender being accepted if they failed to furnish within ten days such additional security as the Commissioners required their cheque should be forfeited. This was the information given to the public. If, however, one applied for the tender forms he would from them learn that the security which he might be required to provide on pain of forfeiting his cheque amounted to one-third of the estimated total consideration of the contract.

One would have expected that the Commission would have followed the governmental practice which was to require (see Order in Council, April 24, 1897, exhibit No. 13) contractors to deposit security to the amount of 5 per cent for contracts amounting to $250,000 and upwards. Indeed, we find that the Honourable Mr. Fielding, after the first three contracts were let, strongly urged on the Commission the advisability of requiring contractors to comply with no more arduous conditions than those imposed by the Government of Canada. Mr. Fielding wrote to Mr. Parent on June 14, 1906: "Do you not think that it is expedient that whatever conclusion the Government and the Commissioners arrive at should be in substance expressed in the advertisements so that parties tendering will be in a position to know exactly what class of security and what amount will be required of the successful bidders? This would avoid some of the questions which arose upon the awarding of the recent contracts."

Despite the suggestion in Mr. Fielding's letter above quoted, the Commissioners ignored his advice and continued the advertisements in the same form for all subsequent contracts.

These extraordinary conditions required the contractors tendering on this work to be prepared to forfeit the certified cheques which accompanied their tenders, unless they were in a position to furnish, within ten days, enormous amounts of security running from one hundred thousand dollars to four millions of dollars.

The conditions in connection with letting the contracts, therefore, were such that the Commissioners held in their own hands the authority to force any contractor to give a cash security which would be so large as: First, to prevent him from securing the contract; and, second, to forfeit the cash deposit which accom-

panied his tender; or they were in a position to make the security as small as they chose to make it. Certainly the Commissioners did not go out of their way to encourage competition.

In order to give some idea of the serious handicap put upon contractors in their efforts to obtain a part of the work on this great Government undertaking, we append a statement giving for the twenty-one grading contracts (which fell to only eleven firms, one of which had a fourth of the whole work) full information, etc., with respect to the security under the following headings:—

(A) Contract No.
(B) Contractor.
(C) Amount of tender.
(D) Amount of cheque deposited with tender.
(E) Amount of security actually called for by Commissioners.
(F) Amount of security which might have been called for under the terms contained in the form of tender.

(A)	(B)	(C)	(D)	(E)	(F)
1.	Grand Trunk Pacific Ry.....	989,985	75,000	75,000	327,000
2.	J. W. McManus.....	289,190	10,000	28,919	96,300
3.	Grand Trunk Pacific Ry.....	767,434	75,000	75,000	255,800
4.	Grand Trunk Pacific Ry.....	1,898,124	100,000	100,000	632,000
5.	Willard Kitchen Co.....	1,646,253	75,000	75,000	548,000
6.	Lyons & White.....	1,385,941	90,000	90,000	461,900
7.	M. P. & J. T. Davis.....	2,377,409	100,000	100,000	792,400
8.	M. P. & J. T. Davis.....	5,011,346	225,000	225,000	1,670,000
9 & 10.	Hogan & Macdonell	5,297,257	225,000	794,588	1,765,000
11.	Grand Trunk Pacific Ry.....	1,691,073	75,000	75,000	563,000
12.	Macdonell & O'Brien	4,559,284	150,000	150,000	1,519,000
13.	Macdonell & O'Brien	3,815,279	150,000	150,000	1,271,000
14.	Grand Trunk Pacific Ry.....	3,986,901	225,000	225,000	1,328,000
15.	E. F. & G. E. Fauquier.....	3,936,566	150,000	150,000	1,312,000
16.	M. P. & J. T. Davis.....	3,308,048	150,000	150,000	1,102,000
17.	M. P. & J. T. Davis.....	2,019,908	150,000	150,000	673,000
18.	E. F. & G. E. Fauquier.....	2,101,499	100,000	100,000	700,000
19.	O'Brien, Fowler & McDougall..	5,967,208	200,000	200,000	1,989,000
20.	O'Brien & McDougall.....	1,158,258	100,000	125,000	386,000
21.	J. D. McArthur	13,010,399	400,000	1,301,000	4,336,000
	Totals			4,239,507	21,727,400

It will be seen from the following table that for nine contracts covering half the line only five firms tendered, and in one case there was only one bid, while in all the others only two, with the result that M. P. & J. T. Davis secured 204 miles, M. J. O'Brien and partners 246 miles, and the Grand Trunk Pacific 256 miles. This affords convincing evidence that the conditions were too onerous for many firms who afterwards undertook the construction of large sections of the road at lower prices as sub-contractors.

CONTRACT NO. 3. Length, 39 miles.—

Tenderers, 1.—	Amount of tender.
Grand Trunk Pacific Railway Co.....	$767,434.95

CONTRACT NO. 4. Length, 67 miles,—

Tenderers, 2.—	
Grand Trunk Pacific Railway Co.....	$1.898,124.21
Macdonell & O'Brien	2,001,486.51

CONTRACT NO. 12. Length, 107 miles.—

Tenderers, 2.—	
Macdonell & O'Brien	$4,559,284.50
M. P. & J. T. Davis.....	4,883,713.50

CONTRACT NO. 13. Length, 115 miles.—
Tenderers, 2.—

Macdonell & O'Brien	$3,815,279.10
M. P. & J. T. Davis	3,876,377.60

CONTRACT NO. 14. Length, 150 miles.—
Tenderers, 2.—

Grand Trunk Pacific Railway Co.	$3,986,901.42
Pacific Construction Co. (E. F. Fauquier)	4,423,837.11

CONTRACT NO. 15. Length, 100 miles.—
Tenderers, 2.—

E. F. & G. E. Fauquier	$3,936,566.00
Grand Trunk Pacific Railway Co.	4,334,214.00

CONTRACT NO. 16. Length, 104.2 miles.—
Tenderers, 2.—

M. P. & J. T. Davis	$3,308,048.25
Grand Trunk Pacific Railway Co.	3,402,585.50

CONTRACT NO. 17. Length, 100 miles.—
Tenderers, 2.—

M. P. & J. T. Davis	$2,019,908.25
Grand Trunk Pacific Railway Co.	2,106,246.00

CONTRACT NO. 20. Length, 24.13 miles.—
Tenderers, 2.—

O'Brien & McDougall	$1,158,258.25
J. W. Stewart	1,284,979.50

Had the Commissioners, instead of dividing the line haphazard into sections of from 8 to 247 miles, made them about 50 miles each and prescribed conditions as to security similar to those on any other Government works, there can be no reasonable doubt that many of the more than one hundred sub-contractors to whom the contractors afterwards sublet the work would have been in the field as competitors.

These sub-contractors took the work off the hands of the main contractors at from 10 to 30 per cent less than the contract price. The Commissioners in all cases sanctioned the sub-contracting. This Commission concludes that at least $8,800,000 or about ten per cent of the amounts paid the main contractors, might have been saved if the smaller contractors had been given an opportunity to secure any of the original contracts.

IRREGULARITIES IN AWARDING CONTRACT.

Under another head (page 25) the contracts themselves are dealt with, but we desire to draw attention to the action of the Commission in the awarding of certain contracts.

Contract No. 8.

The engineers' original estimates contained no estimate for trestle timber. A copy of the original estimate was handed to the chairman of the Commission. Afterwards, and before the tenders were received, the engineers amended their estimate by adding an amount of timber for trestles. After the tenders were received and opened, and before they had been awarded, these items were struck out, with

the result that the contract went to a firm which otherwise would not have received it. The engineers say that when, by direction of the chairman, they struck out these items they signed the estimate and dated it on the day on which they signed it, namely, the 18th February, 1907. Some person has for some improper purpose altered the date by erasing the figure 1 so as to make it appear that the signatures of the engineer and the chief engineer, were affixed on the 8th. The facts and evidence respecting this most suspicious proceeding are given under "Contract No. 8," (page 33.)

Contracts Nos. 16 *and* 17.

These contracts are in the Thunder Bay district, north of lake Nipigon, and were awarded at a time when there was no way to get at them excepting by cutting roads through the wilderness, and when the Commission knew the tenders would necessarily be much higher than they would be if the letting of the contracts were postponed until the railroad had been built up to them at either end.

After these contracts were let at an exceptionally high price the Commission allowed the contractors to defer the commencement of construction for more than a year or until the reason for the high price had disappeared. These contracts are considered at page 47 so it is only necessary to say in this place that for this unbusiness-like step the country paid at least $740,000 for nothing.

Contract No. 18.—*Awarded to Fauquier Bros.*

Here the engineers estimated 655,400 cubic yards of moss sufficient to provide a carpet twenty feet wide and two feet thick over the entire seventy-five miles. The moss in this case was in reality a negligible quantity, amounting to only some 15,000 cubic yards. Fauquier Bros., knowing that there was little or no moss and believing that the engineers were estimating at a large quantity tendered at 12 cents a yard, while their competitors were all about 30 cents. This mistake secured the contract for Fauquier Bros. Fauquier Bros'. tender was $150,000 less for moss than was Chambers & McQuigge. Had the moss been estimated even approximately correctly, Fauquier Bros. would not have been awarded the contract. The result is that they had the contract, although they were not the lowest tenderers for the work really to be done.

Contract No. 21.

This is the largest contract, 246 miles, estimated to cost $13,000,000, awarded to J. D. McArthur. We found that in McArthur's tender there were forty items for which he had submitted no prices, on which the engineer after the tenders were opened filled in in red ink prices adding: "NOTE.—Red figures show prices made up by Chief Engineer and for the items so marked no prices were quoted in tender No. 4." Properly speaking, McArthur's tender should not have been considered at all.

By incorrectly reading the other tenders, McArthur appeared to be tendering for piling delivered and piling driven a price $64,715 less than his competitors. (See contract No. 21, page 58.) Tender No. 4 was clearly $18,000 lower than McArthur's, yet he got the contract.

CONTRACTS.

By the National Transcontinental Railway Act (1903), this road was to be leased to that company for fifty years at 3 per cent on the "cost of construction" as defined in section 15 of the agreement, schedule to the Act, and by section 7, for the protection of the company as lessees, it is provided that in order to ensure for

the protection of the company as lessees of the road, the economical construction thereof in such a manner that it can be operated to the best advantage, it is to be built under the joint supervision of the Government and the company. Here plainly it was thought by so providing that extravagance or improper outlays being subject to the inspection and criticism of the tenant who should have to pay a rent based on the cost would be checked, as presumably a railway company would be concerned in the safeguarding of its own interests.

Excepting where Mr. Hays urged the cancellation of contracts Nos. 16 and 17, and where he gave his not too strong support to District Engineer Doucet in his efforts to have a pusher grade at La Tuque, and where the company offered to do train-hauled filling after the railroad was completed at half the cost paid by the Commissioners, appreciating the gravity of our statement, we unhesitatingly find that the Grand Trunk Pacific Railway Company, instead of discountenancing, has rather encouraged this inexperienced Commission in its extravagant expenditure on this railway.

If the railway company really expected to operate this railway when completed, according to the terms and at the rental provided in its agreement with the Government, we must attribute its want of proper care to its indifference to the interests of its own shareholders or its desire to so increase the cost of construction of the 353 miles of railway, for which it was contractor, so as to reap the largest present profit possible therefrom.

It was a very credulous Commission indeed if it relied on its contractor, the Grand Trunk Pacific Railway Company, interested as such in high classification, to criticise improper classification where other contractors were concerned, or to expect that that contractor would be astute to discourage expenditures where they were the builders of one-seventh of the line. Their estimates to December 31, 1912, amounted to $15,365,000, and we unhesitatingly condemn the action of the Commission in putting the Grand Trunk Pacific Railway Company in a position where its interests as a contractor conflicted with its duty as an intending lessee. By allowing this Grand Trunk Pacific Railway Company to become contractors, the Commission were inducing that company not only to connive at, but to encourage improper expenditures on the railway.

That the Commission did not appreciate the false position in which they were placing the railway company we can only attribute to the fact that at no time was there ever on the Board a member who had hitherto ever had any experience in the business on which they so lightly entered.

The Grand Trunk Pacific Railway Company were not contractors, nor had they an organization, nor was it equipped with plant necessary to undertake this work, nor did it ever perform any of the work, but acted merely as a middleman between the Commission and its sub-contractors, to whom it let its various contracts at 5 per cent less than its own contract price. We cannot imagine what advantage could be expected to accrue to the country by allowing the railway company to act merely as a go-between.

In the following pages we have summarized each of the twenty-one contracts, giving its history and showing the estimates, and where they were exceeded, the reason for the increase of cost, and why in contracts Nos. 1, 7, 11, 13 and 16 and 17 we are of opinion that the penalty of $5,000 a month should, for the time specified therein, be enforced against the contractors.

We desire to draw particular attention to our criticism and findings on contracts Nos. 8, 13, 16, 17, 18 and 21.

Contract No. 1.

From Moncton, westerly 50 miles. Mile 0—50.
Chief Engineer's estimate of cost, $1,017,051.43.
Tenders advertised for January 5, 1907.
Tenders received February 14, 1907.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, Grand Trunk Pacific Railway Co.	$ 989,895.90	
" No. 2, M. F. Schurman & Co.	1,146,916.10	$157,020.20
" No. 3, Eastern Construction Co.	$1,186,789.09	39,872.99
		$196,893.19

Contract awarded to the Grand Trunk Pacific Railway Company, March 14, 1907.
Date for completion, September 1, 1908.
Work commenced, October, 1907.
Security accompanying tender, $75,000 cash.
Security returned to contractor, April 16, 1909.
Additional security called for, nil.
$100,000 of 10 per cent drawback paid contractor, November 25, 1910.
$100,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $2,214,311.20.
Amount of drawback retained on December 31, 1911, $21,431.12.
Percentage of contract complete to December 31, 1911, 97.38 per cent.

The Grand Trunk Pacific Railway Company were awarded this work in March, 1907. They, however, evidently experienced some difficulty in procuring a reliable contractor to take over the work, for it was not until September 23, 1907, that they entered into an agreement with the contracting firm of Corbett & Floesch to undertake the construction of this fifty miles of railway.

The terms of this agreement provide that five per cent of the sum total of the returns under this contract were to be retained by the Grand Trunk Pacific Railway Company as their profits on the transaction. They agreed to construct a road from Chipman to Mileage 57 to the west end of the contract at Mileage 50 so as to enable the contractor to commence operations at both ends at the same time. The amount to be expended on this road was not to exceed $25,000.

The five per cent profit on this work, up to December 31, 1912, amounted to $117,308, from which should be deducted the amount expended on the construction of this temporary roadway from Chipman.

The amount paid the contractors to December 31, 1911, was $1,224,000 in excess of the estimate of the cost of this work based on the successful tenderers' returns, and the following figures, extracted from the engineer's estimate and the returns, indicate to what items of construction this increase is largely due:—

	In estimates		In returns	
S. rock	nil		53,015 c. yds. at $1.50,	$ 79,522.50
L. rock	129,379 c. yds at .89,	$115,147.31	1,195,267 c. yds. at .55,	657,396.85
C. ex.	1,841,152 c. yds. at .32,	689,168.62	560,067 c. yds. at .25,	140,016.75
Train-hauled filling	nil		170,075 c. yds. at .50,	85,037.50
Solid rock borrow	nil		222,022 c. yds. at 1.10¼,	244,779.26
Special common ex.	nil		282,093 c. yds. at .30,	84,627.90
Overhaul on excavation		$ 43,759.62		289,099.36
Cost of concrete		106,353.50		179,428.79
		$853,429.07		$1,759,908.91

The quantities of the various materials to be excavated, etc., were estimated by District Engineer Dunn from profiles of the final location on forty miles of this work, the other ten miles being estimated from third location profiles.

The train-hauled filling and solid rock borrow unprovided for in the estimate were used in the construction of embankments for which material was not available from the line cuttings. Large portions of this extra material were used in the

enormous fill at Coal creek, Mileage 45, the cost of which, including the arch culvert, amounted to $423,000.

The large divisional yard being constructed one mile west of Moncton, for which no provision was made in the estimate, is another reason for the increease in cost, the engine house, not yet complete, having cost to date over $76,000. The returns to December 31, 1912, on this work amount to $2,346,527 and the contract was reported as being 98.92 per cent complete on that date which is four years, four months after the time specified in the contract for the date of completion.

The Grand Trunk Pacific Railway Company were not apparently prepared or equipped to undertake the construction of this or any work which they tendered for. The delay in the commencement of operations due to difficulty experienced in procuring a reliable contractor to take over the work would have been eliminated had the successful tenderer been a bonafide contracting firm. Without here going into the question of the desirability of the early completion of the work, we feel that the enforcement of the penalty clause of $5,000 a month for the eight months of initial delay and the reduction of the main contractors' profits by that amount of $40,000 would not be an injustice to them.

Contract No. 2.

From a point at or near the town of Chipman, N.B., easterly about 8 miles. Mileage 50-58, District A.

Chief Engineer's estimate of cost, $326,341.

Tenders advertised for June 5, 1907.

Tenders received June 25, 1907.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 4, J. W. McManus Co., Ltd.	$289,190.62	
" No. 2, Willard Kitchen Co.	325,188.68	$35,998.06
" No. 1, Grand Trunk Pacific Railway	337,419.69	12,231.01
" No. 3, M. J. O'Brien, Z. J. Fowler	387,690.75	50,271.06
Difference between highest and lowest tenders		$98,500.13

Contract awarded to J. W. McManus Co., Ltd., August 23, 1907.
Date for completion, August 1, 1908.
Work commenced, October, 1907.
Security accompanying tender, 10 per cent, $28,919 cash.
Additional security called for, nil.
Security returned to contractor, December 22, 1911.
Gross amount of progress estimate to December 31, 1911, $587,081.01.
Amount of drawback retained on December 31, 1911, $11,295.85.
Percentage of contract complete to December 31, 1911, 99.76 per cent.

This short contract of eight miles contains a rather startling feature of construction, consisting of a cutting two miles in length at the summit of what is known as the Chipman grade. This cutting was made necessary by the strict adherence to the 0.4 per cent gradient and is dealt with further in another portion of the report.

The line here runs through the town of Chipman at Mile 57 and there crosses the Salmon river on a steel viaduct, 1,200 feet in length.

The quantities on this work were estimated by Mr. Guy C. Dunn from final location profiles.

The work was carried out in its entirety by the main contractors, no subcontracts being awarded.

Contract No. 3.

From the 58th mile west of Moncton to the crossing of the C. P. R. at or about Mile 97.7. 39.7 miles, District A.

Chief Engineer's estimate of cost, $933,137.

Tenders advertised for February 1, 1908.

Tender received March 10, 1908.

SUMMARY OF TENDERS.

Grand Trunk Pacific Railway Company..... $767,434.95
Contract awarded to the Grand Trunk Pacific Railway Co., March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, June, 1908.
Security accompanying tender, $75,000 cash.
Additional security called for, nil.
Security returned to contractor, November 25, 1910.
$50,000 of 10 per cent drawback paid contractor, November 25, 1910.
$50,000 of 10 per cent. drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $1,042,618.36.
Amount of drawback retained on December 31, 1911, $3,553.87.
Percentage of contract complete to December 31, 1911, 99.71 per cent.

The Grand Trunk Pacific Railway Company sublet this entire contract to the Toronto Construction Company under an agreement dated the 21st May, 1908, and that firm commenced operations the following month.

The terms of this agreement were similar to the other agreements consummated by the Grand Trunk Pacific Railway Company and provided for them a profit of five per cent of the total value of the work done.

The Toronto Construction Company had four firms of subcontractors who undertook the grading on this forty-mile stretch, and another firm of subcontractors for the concrete work. We are, however, advised by the Toronto Construction Company that their concrete subcontractors failed and they were obliged to finish the work themselves.

The following statement shows comparison between the rates contained in the main contract and those in the subcontracts which were awarded by the Toronto Construction Company:—

	Main contractors.	Sub-contractors.
Clearing	$50 per acre	$35 per acre
Grubbing	$160 " "	$135 " "
Solid rock, per cubic yard.....	$1.25	$1.05
Loose rock, per cubic yard.....	.44	.35
Ex. in foundations, per cubic yard.....	$1.00 and $3.00	.50
Cross logging, per acre.....	$800.00	$600.00
Timber for culverts	40.00 per M.	30.00 per M.
Concrete, 1-2-4 per cubic yard.....	13.00	10.00
Concrete, 1-3-5 per cubic yard.....	11.50	9.00
Concrete, 1-3-5 per cubic yard in arch culverts	12.00	9.00

The items enumerated above cover only those for which quantities have been returned in the contractors' progress estimates.

The estimates, compiled by the Investigating Commission from the records available showing the work performed by these subcontractors, give the following figures:—

Value of work done by subcontractors at their rates, $280,776.
Amount paid Toronto Construction Company for this work, $352,921.
Profit, $72,145.
Percentage of profit, 20 per cent.

Here allowance has been made for the five per cent profit which the Grand Trunk Pacific Railway Company received, so that the total percentage of profit between the original contractors and the subcontractors was 25 per cent.

The five per cent profit to the Grand Trunk Pacific Railway Company to December 31, 1912, amounts to $51,198. It will be noted that they were the only tenderers on this work and the Commissioners awarded them the contract in view of the fact that the estimate of the cost of the work, based upon their returns, was considerably lower than the estimate of the cost as prepared by the Chief Engineer. These estimates were compiled from those taken by District Engineer Dunn from the final location profiles. The increase in cost over the original estimate is due to the large quantity of over 275,000 cubic yards of train-hauled filling used in the construction of embankments and for which no provision was made in the original estimate, also, to the increase in the solid rock returns from 22,000 cubic yards as estimated to 84,000 cubic yards as finally paid for.

Contract No. 4.

From about Mile 97.7 west of Moncton to the Tobique River at about Mile 164.7. 67 miles, District A.

Chief Engineer's estimate of cost, $2,356,389.84.

Tenders advertised for February 1, 1908.

Tenders received March 10, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, Grand Trunk Pacific Railway.....	$1,898,124.21	
" No. 2, Macdonell & O'Brien	2,001,486.51	$103,362.30

Contract awarded to the Grand Trunk Pacific Railway, March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, June, 1908.
Security accompanying tender, $100,000 cash.
Additional security called for, nil.
Security returned to contractor, November 25, 1910.
$150,000 of 10 per cent drawback paid contractors, November 25, 1910.
$110,000 of 10 per cent paid contractors, July, 1911.
Gross amount of progress estimate to December 31, 1911, $2,805,300.01.
Amount of drawback retained on December 31, 1911. $18,924.58.
Percentage of contract complete to December 31, 1911, 99.53 per cent.

This contract was sublet by the Grand Trunk Pacific Railway Company to the Toronto Construction Company under an agreement which provided a profit of five per cent to the main contractors. The Toronto Construction Company, in turn, sublet the grading and concrete work to four firms of subcontractors, and, in addition to the terms of these subcontractors, we have procured a series of copies of further sub-subcontracts by which this work was again sublet, and the following statement shows the comparison of these prices:—

	Main contractors.	Subcontractors.	Sub-subcontractors.
Clearing, per acre	$50	$45	$30
Grubbing, per acre	$150	$135	$100
Solid rock	$1.45	$1.25	$1 and $1.10
Loose rock	.45	.36	.30 and .28
Common excavation	.27	.23½ and .22½	.18
Timber for culverts	$40 per M.	$36 per M.	
Concrete, 1-2-4	$12	$10	
Concrete, 1-3-6	$10.50	$8.50	
Concrete, 1-3-6 in arch culverts.....	$11.00	$8.50	

These figures illustrate to a remarkable degree the extent of profit taking between the main contractors and the stationmen who actually performed the work.

To December 31, 1912, the five per cent profit to the Grand Trunk Pacific Railway Company on this contract amounted to $141,773.

The estimate for this work was prepared by Mr. Dunn from the profiles of the final location of the line.

The returns on this work show an increase over the original estimate of about $500,000. This increase is due to the item of train-hauled filling, which, in cost, exceeded the estimate by $274,000, to the solid rock returns which increased 100 per cent, and to other items, one of which is the engine house at the divisional point of Napadogan which has cost to date $96,000, and for which no allowance had been made in the engineer's figures.

Contract No. 5.

From one mile east of Tobique River to about 2½ miles west of Grand Falls, N.B., being from Mile 163.80 to Mile 195.58 west of Moncton. 31.7 miles.

Chief Engineer's estimate of cost, $2,232,891.45.

Tenders advertised for February 1, 1908.

Tenders received March 10, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, Willard Kitchen Co., Ltd	$1,646,253.65	
" No. 6, Craig & Thompson	1,694,626.02	$ 48,372.37
" No. 5, M. P. & J. T. Davis	1,718,288.41	23,662.39
" No. 4, Kennedy & McDonald	1,757,483.19	39,194.78
" No. 3, Grand Trunk Pacific Railway	1,774,991.33	17,508.14
" No. 7, Macdonell & O'Brien	1,818,402.74	43,411.41
" No. 1, Trites, McPhail, Mavor & Miller	2,003,283.99	184,881.25
Difference between highest and lowest tenders		$357,030.34

Contract awarded to Willard Kitchen Co., March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, May, 1908.
Security accompanying tender, $75,000 cash.
Additional security called for, nil.
$220,000 of 10 per cent drawback paid contractor, January, 1911.
$40,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $3,023,784.84.
Amount of drawback retained on December 31, 1911, $42,230.39.
Percentage of contract complete to December 31, 1911, 97.28 per cent.

The entire mileage of this contract was divided by the Willard Kitchen Company among twelve contractors for the grading and general work, while the concrete work was sublet to the firm of Powers & Brewer, who, in turn, sublet a portion of it to the firms of Farlinger & McDonald and Cavichi & Pagano.

The statement compiled by the Commission from the subcontractors' rates and their returns shows the following results:—

Value of work done by sub-contractors at their rates, $1,819,456.00.
Amount paid main contractors for this work, $2,518,937.00.
Profits, $699,481.00.
Percentage of profits, 27¾ per cent.

The following are the respective prices paid the main contractors and the various subcontractors for the items contained in the returns:—

	Main contractors.	Subcontractors.	Sub-subcontractors.
Clearing per acre	$42	$35	
Grubbing	$100	$75	
Solid rock, per cubic yard	$1.49	$1.25	
Loose rock, per cubic yard	.35	.30	
Common excavation	.24	.20	
Solid rock borrow	$1.10¼	.75	
Timber in culverts	$35	$25	
Tunnels	$98.90	$77.12	
Piles delivered per lin. ft.	.20	.08	
Piles driven per lin. ft.	.30	.18	
Concrete facing mixture	$20	$13.50	$12.75
Concrete 1-2-4	$15	$10	$9.75
Concrete 1-3-5	$11	$8.50	$7.75
Concrete 1-3-6	$10.50	$8	$7.25
Concrete 1-2-5	$11.50	$8.75	$8
Concrete 1-3-5 in arch culverts	$11.00	$9.50	$8.75
Concrete 1-3-6 in arch culverts	$10.75	$9	$8.25

The 31.7 miles covered by this contract shows a cost of over $130,000 per mile.

Mr. Dunn prepared the estimate for this work from the profiles of the final location. There were seven tenderers for this contract, which was the largest number of tenderers for any grading contract on the Transcontinental railway.

A comparison of the figures contained in the original estimate and the returns to date show that the large increase in cost is due principally to the items of solid rock, concrete work, and train hauled filling. These figures are:—

	In Estimate.	In Returns.
Solid rock	252,893 cub. yards	692,600 cub. yards
Concrete	21,956 cub. yards	34,801 cub. yards
Trainhauled filling	50,000 cub. yards	335,570 cub. yards

On this contract is located some of the very heaviest work experienced on District A. From the summit at Mileage 178, which is overcome by a tunnel, to Mileage 192, the cuttings and fills are exceedingly heavy, and, in addition to the excavation costs, within this mileage are located four steel viaducts, one at Graham Brook, 520 feet in length, one at Caton Brook, 1,060 feet in length, one at Little River, 1,242 feet in length, and the Salmon River viaduct at Mileage 184, 3,900 feet in length and some 225 feet high. This is the costly piece of construction on which one and three-quarter million dollars might have been saved, as outlined in the report on the Salmon River viaduct.

Contract No. 6.

From a point at or near Grand Falls, N.B., westerly to the Quebec-New Brunswick boundary, being from Mile 195.58 to 256.61 west of Moncton. 61.03 miles.

Chief Engineer's estimate of cost, $1,478,395.78.

Tenders advertised for January 5, 1907.

Tenders received February 14, 1907.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, Lyons & White	$1,385,941.09	
" No. 2, Grand Trunk Pacific Railway	1,407,349.41	$ 21,408.32
" No. 5, Toronto Construction Co	1,514,147.48	106,798.07
" No. 4, Eastern Construction Co., of Amherst, N.S.	1,516,269.04	2,121.56
" No. 3, Eastern Construction Co	1,639,306.02	123,036.98
" No. 6. J. W. McManus Co., Limited	1.641.681.46	2.375.44
Difference between highest and lowest tenders		$255,740.37

Contract awarded to Lyons & White, March 9, 1907.
Date for completion, September 1, 1908.
Work commenced, May, 1907.
Security accompanying tender, $90,000 cash.
Additional security called for, nil.
$100,000 of 10 per cent drawback paid contractor, April, 1909.
$100,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $2,409,112.80.
Amount of drawback retained on December 31, 1911, $40,911.28.
Percentage of contract complete to December 31, 1911, 94.86 per cent.

The grading work on this contract was sublet by Messrs. Lyons and White to seven firms of main subcontractors. A few minor sub-subcontracts were let, but in the main the work was carried out by these seven contractors.

The following list shows a comparison of the rates paid Messrs. Lyons and White and those paid the subcontractors for a few of the principal items of construction:—

	Main contractors.	Subcontractors.
Clearing per acre	$40.00	$30.00
Solid rock, per cubic yard	1.60	1.20
Loose rock, per cubic yard	.50	.40
Common ex. per cubic yard	.23	.18
Excavation in foundations, no cofferdams	1.00	.35
Excavation in foundations, with cofferdams	2.00	.50
Piling delivered per lin. ft.	.25	.15
Pile driving per lin. ft.	.15	.15
Concrete 1-2 mixture per cub. yard	16.00	12.50
Concrete 1-2-4	12.00	9.00
Concrete 1-3-5	10.50	7.50
Concrete 1-3-6	10.00	7.00
Concrete 1-3-5 in arch culverts	11.00	8.00
Concrete 1-3-6 in arch culverts	8.50	6.50
Train-hauled filling	.40	.35

A summary compiled from the subcontractors' returns and their rates shows a profit of 19¾ per cent for Messrs. Lyons and White on this work.

The yardage of material in excavation and embankments was very greatly in excess of the estimate prepared by District Engineer Dunn. The item for train-hauled filling alone has increased the cost by $227,000.

Contract No. 7.

From the Quebec-New Brunswick boundary, westerly, being from Mile 256.61 to 310.22. 53.61 miles.

Chief Engineer's estimate of cost, $3,139,367.00.
Tenders advertised for February 1, 1908.
Tenders received, March 10, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, M. P. & J. T. Davis	$2,377,409.00	
" No. 1, O'Brien & Fowler	2,512,488.30	$135,079.30
" No. 3, Grand Trunk Pacific Railway	2,608,099.75	95,611.45
Difference between the highest and lowest tender		$230,690.75

Contract awarded to M. P. & J. T. Davis, March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, June, 1908.
Security accompanying tender, $100,000 cash.
Additional security called for, nil.
$200,000 of 10 per cent drawback paid contractor, January, 1911.
$10,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $2,529,912.41.
Amount of drawback retained on December 31, 1911, $42,045.70.
Percentage of contract completed to December 31, 1911, 71.40 per cent.

The estimate on which this contract was awarded was compiled from first location profiles.

Work was commenced by Messrs. Davis, in June, 1908, but has not been conducted with sufficient vigor or diligence to ensure early completion, being only 71.4 per cent complete on December 31, 1911, a year and four months after the date set for completion.

The delay in the progress of work on this contract and the eastern end of contract No. 8, which might have been reached earlier had contract No. 7 been further advanced, has undoubtedly been the cause of delay to the completion of the through railway from Levis to Moncton. On December 31, 1911, contracts Nos. 1, 2, 3, 4 and 5 were reported 90 per cent complete, and contract No. 6, 88.7 per cent complete, while the work on contract No. 7 was only 62.8 per cent complete. We feel that these being the conditions the enforcement of the penalty clause would have had, perhaps, salutary effect, and that at this date the penalizing of the contractor for twelve months' delay at $5,000 per month and the reduction of his profits by this sum of $60,000 would be an inadequate compensation for the delay to the opening of the through line of railway.

The following list shows a comparison between the main contractors' rates and those paid the subcontractors:—

	Main contractor.	Subcontractor.
Solid rock, per cubic yard	$ 1.45	$ 1.24
Loose rock, per cubic yard	.50	.40
Common ex., per cubic yard	.24	.22
Concrete 1-2-4 mixture	13.00	10.75
Concrete 1-3-5 mixture	10.00	8.10
Concrete 1-3-6 mixture	9.50	7.60
Train-hauled filling	.40	.28

And while no statement has been compiled showing the approximate profits realized, at the rates shown for main and subcontractors, the item of train-hauled filling alone would have provided a profit of over $225,000.

Contract No. 8.

From a point at or near the Quebec Bridge, easterly about 150 miles, being from mile 310.22 to 460.45. 149.12 miles. Quebec Bridge—1.11 miles.

Chief Engineer's estimate of cost, $5,491,974.00.

Tenders advertised for January 5, 1907.

Tenders received February 14, 1907.

District B, Residency 43, Mileage 97 0. End of Grading, August 14 1912 Page 42

District F, Residency 21, Mileage 24.6. Waste. Page 60.

District B, Residency **30**, Mileage **162.3.** Assembled Rock. Page **66.**

District B, Residency **32**, Mileage **174.7.** Assembled Rock. Page **66.**

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 4, M. P. & J. T. Davis	$5,011,346.50	
" No. 3, Grand Trunk Pacific Railway	5,018,554.80	$ 7,208.30
" No. 2, O'Brien & Mullarkey	5,169,745.05	151,190.25
" No. 1, Russell, Chambers, Limited	5,213,542.50	43,797.15
Difference between highest and lowest tenders		$202,195.70

Contract awarded to M. P. & J. T. Davis, March 9, 1907.
Date for completion, September 1, 1909.
Security accompanying tender, $225,000 cash.
Additional security required, nil.
$300,000 of 10 per cent drawback paid contractor, December, 1908.
$250,000 of 10 per cent drawback paid contractor, January, 1911.
$10,000 of 10 per cent drawback paid contractor July, 1911.
Gross amount of progress estimate to December 31, 1911, $6,341,955.99.
Amount of drawback retained on December 31, 1911, $64,405.94.
Percentage of contract completed to December 31, 1911, 80.17 per cent.

The first statement prepared by the Chief Engineer of the estimated cost of this contract, was completed on January 18, 1907, and amounted to $5,491,974, which was a compilation of the estimated quantities as submitted by the District Engineer. Tenders were advertised for on January 15, 1907, and were received and opened on February 14. Prior to the opening of the tenders, the Chief Engineer revised these original estimates by the addition of the following items, for the reason as given by Mr. Lumsden that he thought they would require some trestles in that portion of the country covered by this contract:—

Item 24, Framed Trestles	732,190 F. B. M.
Item 26, Sawn Ties and Guard Rail	166,600 F. B. M.
Item 27, Stringers	192,780 F. B. M.
Item 96, Iron in Drift Bolts	8,109 No.
Item 97, Iron in Screw Bolts	38,887 No.
Item 99, Cast Iron Washers and Separators	27,560 No.

On January 23rd, the Chairman of the Commission, Mr. Parent, was supplied with copies of the Chief Engineer's estimates of the cost of the five contracts for which tenders closed on February 14, one of which is Contract No. 8. The estimate for contract No. 8, which he received, was a copy of the original estimate, and did not contain the items covering the construction of trestles noted above. (Page 409.)

The tenders for this contract were opened on February 14, and on the afternoon of February 15, the list of prices contained in the various tenders was handed the Chief Engineer's office, so that they might be moneyed out, according to the estimated quantities.

If these tenders had been moneyed out by the revised estimate, which contained the items for the construction of trestles, the result would have been as follows:

		Difference between tenders.
Grand Trunk Pacific Railway	$5,078,334.77	
M. P. & J. T. Davis	5,105,389.24	$ 27,044.47
O'Brien & Mullarkey	5,245,586.55	140,197.31
Russell & Chambers Co.	5,269,671.22	24,084.67
Difference between highest and lowest tenders		$191,326.45

and the Grand Trunk Pacific Railway Company would have been the lowest tenderer by $27,044.47.

However, before these results were announced, the chairman, having learned that after he had received copies of the engineer's estimate it had been revised by the addition of the items for the construction of wooden trestles, directed the Chief and Assistant Chief Engineers to strike out these items and to rewrite the estimate, leaving these items blank.

After they were amended and rewritten, the chairman caused the rewritten copies to be signed by the Chief Engineer, Hugh D. Lumsden, and the Assistant Chief Engineer, Duncan MacPherson. (See exhibit No. 27.) These signatures were dated 18th February, 1907, but the figure "1" of the "18th" has been erased to make it appear that these signatures were affixed to this estimate on the 8th of February, 1907. On the 8th of February, Mr. Lumsden was not in Ottawa, in fact, but was in Winnipeg, as he has sworn (p. 408); and as appears by entries in his diary, produced before the Commission. Mr. MacPherson states (see exhibit No. 28) that this was signed by Mr. Lumsden and himself on the 18th of February, and that Mr. Lumsden left for Winnipeg on the 5th of February, and returned on February 13. The tenders were opened by the Commissioners on the 14th and 15th of February, so that the Chairman on the 18th knew what the tenders were.

In their tender, M. P. & J. T. Davis asked for item 24, framed trestles, $80 per m.f.b.m; item 26, sawn ties and guard rail, $80 per m.f.b.m.; item 27, stringers, $85 per m.f.b.m.; while the Grand Trunk Pacific Railway Company asked $50, $45 and $60 per m.f.b.m. respectively for these three items. Had the chairman not ordered the estimates for these three items to be struck out the standing of the tenders would have been as follows:—

Grand Trunk Pacific Railway	$5,078,334.77
M. P. & J. T. Davis	5,105,339.24
O'Brien & Mullarkey	5,245,558.55
Russell & Chambers	5,298,671.22

It will be seen from the above that the Grand Trunk Pacific Railway would have been $27,044.47 lower in their tender than M. P. & J. T. Davis. It was, therefore, essential if M. P. & J. T. Davis were to receive this contract that items 24, 26 and 27 should be struck out.

No legitimate reason can be adduced why the chairman should direct these items to be struck out of the estimates. The price which M. P. & J. T. Davis asked for these items is double that which any of their competitors asked and is double what it was worth to supply the timber, and it is not reasonable to suppose that had they expected that this timber would figure largely in the engineer's estimate, that they would have made such preposterous figures for this timber. Some person with a guilty mind erased the figure "1" from the date on the estimate and that person clearly erased that figure for the purpose of making it appear that that estimate sheet was signed before the tenders were received and opened.

Mr. S. N. Parent, who was chairman of the Commission at the time these contracts were let, gave evidence on this investigation, and he was shown all the documents above mentioned and was informed of what Mr. MacPherson and Mr. Lumsden said in regard to the matters above spoken of.

He said that he did not order the Chief Engineer to strike out the estimates for the timber:—

> "I never did that; on the contrary, we obliged them to have them in."
> (Page 619.)

He said, when he was giving his evidence (page 621), that this was the first time he had seen the estimates signed by Lumsden and MacPherson, and the evidence then continues:—

"Q. Mr. Lumsden was not here on the 8th February at all; he was, as he swears, at Kenora on the 8th February, and some person has altered his signature so as to make it appear that he signed that document before the tenders were in for that contract, while, as a matter of fact, he signed it after the tenders came in. Do you say you know about that?—A. I never knew anything about that. I know nothing about it. For my part, I am prepared to swear now it is the first time I saw that document. If the alteration which you state there has been done, I am perfectly well convinced that it has been done since I resigned here. They have the new administration going on and they try to find fault with the last administration."

The document was filed as Exhibit A., in Mr. Parent's evidence. (See Exhibit No. 27.) He was further asked:—

"Q. As a matter of fact did the Davises see these estimates, to your knowledge?—A. I cannot say that.

"Q. Do you know whether they did or not?—A. I do not think so, for this reason, that I do not recollect at all the changes that MacPherson and Lumsden speak about.

"Q. Did you show the Davises this estimate?—A. I cannot say that. If it occurred to me and I thought it was in the public interest to do so, I would have done so. Davis may have seen it, or the Grand Trunk may have seen it, or somebody else may have seen it, but I gave no preference to Davis or anyone else.

"Q. I understand that, but I want to know now if you remember whether or not this estimate was shown to the Davises?—A. I cannot swear.

"Q. You do not know whether they were or not?—A. I cannot swear that.

"Q. You do not know whether you showed them or not?—A. If I did the others must have seen them too.

"Q. Do you remember whether you showed Mr. Davis?—A. I cannot say as to that. There were so many things going on in the Commission that I could not recollect a special thing like that. We refused to give quantities to a contractor from the start because by doing so we might get into trouble."

It will be observed that Mr. Parent states that he did not instruct the elimination of the estimates for timber but that he caused them to be inserted. We think he must be mistaken in this or he certainly would have understood when the tenders moneyed out were brought before him, that the engineers, after having amended the estimates in that respect had again struck them out and would have restored them.

Though he testifies that he had never seen the document on which the date has been altered from 18th February, 1907, to 8th February, 1907, he will not directly pledge his oath that he gave no information respecting these estimates to the successful tenderers. Mr. M. P. Davis in his evidence positively denies that he has seen these estimates.

Whatever may be the proper inference from this evidence, there can be no doubt:—

1. That originally there was no estimate for timber trestles.
2. That the Commissioners had a copy of the signed estimate.
3. That the engineers, before the tenders were opened, had added an estimate for timber trestles.
4. That on 18th February, 1907, after the tenders were opened, the estimates for timber trestles were struck out.

5. That had the estimate for timber trestles not been struck out, the Grand Trunk Pacific Railway Company would have been the lowest tenderer and would have been awarded contract No. 8.

6. That some person, for some sinister purpose, has altered the date on the document, "Exhibit A" in Mr. Parent's evidence, from 18th February, 1907, to 8th February, 1907, and that the fair conclusion is that that person altered that date for the purpose of making it appear that these amendments to the estimates had been stricken out before the tenders were received.

The firm of M. P. & J. T. Davis, therefore, secured this contract, and the work was proceeded with. The great portion of the grading work on this contract was sublet to various contracting firms, and the following comparative statement shows the prices paid the main contractors and the average prices paid the sub-contractors for a few of the principal items:—

	Main contractors.	Subcontractors.
Item 4, solid rock	$ 1.45	$ 1.26
Item 5, Loose rock	.65	.42
Item 6, common excavation	.27	.22
Item 59, concrete 1-2-4	15.00	11.00
Item 62, concrete 1-3-5	10.50	8.15
Item 63, concrete 1-3-6	10.00	7.60
Item 74c, train filling	.45	.29

We have been unable to compile accurate statements showing the profit-taking on this entire contract. The item for train-hauled filling, however, of which there was 2,700,000 cubic yards, at the rates paid the main and sub-contractors, would indicate a profit on this item alone of $432,000.

There is no doubt that it was a very profitable contract.

Contract No. 9a.

For construction of railway from the northern approach to the Quebec bridge to the Champlain Market in the City of Quebec, a distance of about 6.38 miles; and

A terminal revetment wall of timber crib substructure with concrete wall superstructure to extend from a point on the river front just east of the Champlain Market site in a westerly direction, a distance of approximately 1,930 feet.

Contract awarded to M. P. & J. T. Davis.
Contract dated April 5, 1911.
Date for completion, January 1, 1914.
Security accompanying contract, nil.
Gross amount of progress estimate to December 31, 1911, $419,422.06.
Amount of drawback retained on December 31, 1911, $31,942.21.

This contract covers the portion of the work which was included in that being undertaken by the Quebec Bridge Company before the disaster to the Quebec bridge.

The Government took over that work and found that M. P. & J. T. Davis had a contract with the Quebec Bridge Company for the construction of the necessary approach tracks to the Quebec bridge. This contract was then transferred to the Commissioners of the National Transcontinental railway, and its scope is somewhat extended, so as to join up the City of Quebec with the Quebec bridge and Transcontinental railway.

The contract recites that it is given to the contractors in lieu of that held by them from the Quebec Bridge Company. It was not for that reason advertised for public competition.

CONTRACTS NOS. 9 AND 10.

(*Contract No.* 9)

From the Quebec Bridge westerly 50 miles—mileage 460.45 to 510.31= 49.86 miles.

Estimate on basis of lowest tender (see note below.)
Gross amount of progress estimates Dec. 31st, 1911—$2,660,000.41.
Contract dated May 15th, 1906 (with Hogan & Macdonell.)
Security deposit $225,000.00; returned Oct. 17th, 1910.
$85,000.00 a/c drawback paid M. P. & J. T. Davis April 6th, 1908.
$50,000.00 a/c drawback paid M. P. & J. T. Davis Dec. 5th, 1908.
Amount of drawback held Dec. 31st, 1911—$47,005.84.
Percentage of contract completed Dec. 31st, 1911—80.42 per cent.
$80,000.00 a/c drawback paid July, 1911.

(*Contract No.* 10)

From 50 miles west of Quebec Bridge westerly 100 miles, mileage 510.31 to 610.41=100.10 miles.

Chief Engineer's estimate of cost (See note below.)
Estimate on basis of lowest tender (See note below.)
Gross amount of progress estimates Dec. 31, 1911=$9,489,472.67.
Contract dated May 15, 1906 (with Hogan & Macdonell.)

NOTE:—The above contracts were assigned by Hogan & Macdonell.
Contract No. 9 to M. P. & J. T. Davis.
Contract No. 10 to Macdonell & O'Brien.

SUMMARY OF TENDERS.

No. 7—Hogan & Macdonell	$5,297,257.00
No. 8—O'Brien & Mullarkey	5,550,204.00
No. 6—G.T.P. Railway Co	6,459,538.00
No. 5—M. P. & J. T. Davis	6,677,598.00
No. 10—Connolly, Jardine & Wilson	7,081,001.00
No. 9—MacArthur Construction Co	7,940,325.00
Chief Engineer's estimate	6,172,827.05

Security deposit, $569,588.00; returned September 23, 1908.
$300,000.00 account drawback paid, April 6, 1908.
$250,000.00 account drawback paid, December 5, 1908.
$125,000.00 account drawback paid, July 28, 1910.
Amount of drawback held December 31, 1911=$34,622.45.
Percentage of contract completed, December 31, 1911=96.20 per cent.
$125,000.00 account drawback paid, July, 1911.
Advertisement dated February 8, 1906.
Tenders received, March 12, 1906.

CONTRACT NO. 9.

M. P. & J. T. Davis.

From the Quebec Bridge, westerly 50 miles. Mileage 460.45 to 510.31. 49.86 miles.

Contract dated May 15, 1906.
Date for completion, September 1, 1907.
Work commenced June, 1906.
Security deposit $225,000, returned to Messrs. Davis, October 17, 1910.
$85,000.00 of 10 per cent drawback paid contractors April 6, 1908.
$50,000.00 of 10 per cent drawback paid contractors December 5, 1908.
$80,000.00 of 10 per cent drawback paid contractors July, 1911.
Amount of drawback retained on December 31, 1911, $47,005.84.
Percentage of contract complete to December 31, 1911, 80.42 per cent.

This contract extended from the Quebec Bridge, westerly about 50 miles. The Quebec divisional yard, roundhouse, etc., which are located immediately north of the Quebec Bridge, are included in this contract.

This divisional yard has been called "bridge" to distinguish it from any other station which may be erected in the City of Quebec proper.

The features on this contract are the large double track cutting at Cap Rouge, and the Cap Rouge Viaduct, both of which are dealt with further in another portion of this report.

The work on this contract was generally sublet by Messrs. Davis, and the following figures show the main contractors' rates and the average prices paid to subcontractors for a few of the principal items of construction:

	Main Contractors.	Subcontractors.
Solid rock per cubic yard	$1.50	$1.25
Loose rock per cubic yard	.50	.40
Common ex. per cubic yard	.21	.18
Concrete 1-2-4 mixture	12.00	8.25
Concrete 1-3-6 mixture	10.00	6.75
Concrete 1-3-6 in arch culverts	10.00	7.75

No statement of approximate profits has been compiled for this contract on account of the difficulty experienced in procuring accurate records of subcontractors' prices and quantities.

About 790,000 cubic yards of trainhauled filling have been returned to December 31, 1912, at the rate of fifty-five cents per cubic yard, and, at the rates which this work was sublet by Messrs. Davis on Contracts Nos. 7 and 8, these figures would indicate a profit to the main contractors of $200,000.00 on this item alone.

Contract No. 10.

Macdonell & O'Brien.

From 50 miles west of the Quebec Bridge, westerly 100 miles. Mileage 510.31 to 610.41. 100.10 miles.

Contract dated May 15, 1906.
Date for completion, September 1, 1907.
Work commenced June, 1906.
Security deposit $569,588.00 returned to Macdonell & O'Brien, September 23, 1908.
$300,000.00 of 10 per cent drawback paid contractors April 6, 1908.
$250,000.00 of 10 per cent drawback paid contractors December 5, 1908.
$125,000.00 of 10 per cent drawpaid paid contractors July 28, 1910.
$125,000.00 of 10 per cent drawback paid contractors July, 1911.
Amount of drawback retained on December 31, 1911, $34,622.45.
Percentage of contract complete to December 31, 1911, 96.20 per cent.

The grading work on this 100 miles was divided among about a dozen firms of subcontractors, and the concrete work was sublet in like manner.

The following list shows the rates paid the main contractors and the average prices paid subcontractors for a few of the principal items of construction:

	Main Contractors.	Subcontractors.
Solid rock per cubic yard	$1.50	$1.30
Loose rock per cubic yard	.50	.40
Common ex. per cubic yard	.21	.18
Concrete 1-2-4	12.00	9.79
Concrete 1-3-5	11.00	8.71
Concrete 1-3-6	10.00	8.43
Trainhauled filling	.55	.40
Piling delivered	.20	.16
Piling driven	.40	.16

The statement compiled by this Commission, based on these prices and the subcontractors' returns, show the following results:

Value of work done by subcontractors at their rates $5,540,571.72.
Amount paid main contractors at their prices for this work, $7,088,266.24.
Profit, $1,547,694.52.
Percentage of profit, 21 3-4 per cent.

There has not been included in these figures any yardage of trainhauled filling as the returns from the District Engineer's office do not show that any of this work was handled by subcontractors. Messrs. Macdonell & O'Brien, however, in statements submitted by them, give the average price paid subcontractors for this item as forty cents, and assuming that they could handle the work themselves for this rate on the 3,577,960 cubic yards returned under this heading, a profit would be realized of $536,000.00.

In connection with the further subletting of this work, we have been supplied with subcontracts to stationmen, under which agreements the men who actually performed the excavation of the cuttings were paid for solid rock excavation, ninety cents per cubic yard, and for loose rock excavation, twenty-five cents per cubic yard, and for common excavation, fifteen cents per cubic yard. From the records which we have been supplied with, we find that these are the lowest figures paid to stationmen for grading work of any character.

The prices at which Messrs. Macdonell & O'Brien sublet the work has a direct bearing upon several features in the report to which it is well to call attention. The price per cubic yard for trainhauled filling, we have contended, was excessive, and the quantity handled at these prices was unnecessary. The large profits indicated by these returns are conclusive proof of the desirability of limiting, by every expedient possible, the extent of this, to the main contractors, highly lucrative work.

Attention is also drawn to the prices paid by Messrs. Macdonell & O'Brien for the items of 'Piling Delivered' and 'Piling Driven.'

The increase in quantities on this contract over the engineers' estimated quantities are as follows:

	In Estimate	In Returns
Solid rock	779,433 cu. yds.	2,712,359 cu. yds.
Loose rock	211,200 cu. yds.	1,513,284 cu. yds.
Common excavation	4,242,455 cu. yds.	1,501,802 cu. yds.
Train fill	Nil.	3,577,960 cu. yds.

In connection with the largely increased cost of work on this contract, we cannot do better than quote here from the explanation of this increased cost as applying to District "B," given by Mr. Gordon Grant in a report of the Commissioners to the Honourable George P. Graham, dated April 11, 1910, and printed in column 8356 of Hansard for April 23, 1910. The memorandum is as follows:

Remarks as to District "B"—

"Some of the reasons counting for the apparent inaccuracy of the estimates of quantities made before the opening up of the work and the award of the contracts in this district are as follows:

"(1) In the case of the 150 miles from the north abutment of the Quebec Bridge, westerly, Contracts Nos. 9 and 10, the surveys were not completed before the contracts were awarded, and the estimates of quantities were based partly on first location lines, partly on preliminary, and fifty miles on projected lines, the demand for the estimates being made by the Chief Engineer; on revising the work, errors in levels were found requiring a change of line in several places and heavier work to get a 0.4 per cent grade; the opening up of the work disclosed a vast quantity of mixed material not provided for in the estimated quantities. No allowance was made for train filling where common excavation borrow could not be obtained. The estimates were based on the use of velocity grades, the elimination of which increased the quantities greatly. The estimates were made on the order of the Chief Engineer before sufficient information had been obtained regarding the rise and fall of some of the streams encountered, and this, in some cases, required the subsequent raising of the grade and an increase in the quantities, thus adding to the cost both of the grading and the bridges; the location lay along steep side hills in many cases, thus adding to the difficulty of making accurate estimates of quantities cross sections not having been taken; (2) many of the above reasons apply to the district generally and test pits were not as a rule dug in cuttings."

Contract No. 11.

From about La Tuque to Weymontachene, P.Q., being from Mile 610.41 to 656.83. 46.42 miles.

Chief Engineer's estimate of cost, $1,776,280.00.

Tenders advertised for January 5, 1907.

Tenders received February 14, 1907.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1 Grand Trunk Pacific Railway	$1,691,073.41	
Tender No. 2 Macdonell & O'Brien	1,951,905.74	$260,832.33
Tender No. 3 Russell, Chambers, Ltd.	2,033,711.23	$1,805.49
		$342,637.82

Contract awarded to the Grand Trunk Pacific Railway Co. March 14, 1907.
Date for completion, September 1, 1908.
Work commenced November, 1907.
Security accompanying tender, $75,000.00 cash.
Additional security called for, nil.
Security returned to contractor June 7, 1910.
$175,000.00 of 10 per cent. drawback paid contractor July, 1910.
$120,000.00 of 10 per cent. drawback paid contractor July, 1911.
Gross amount of progress estimate to December 31, 1911, $3,168,162.95.
Amount of drawback retained on December 31, 1911, $20,465.00.
Percentage of contract complete to December 31, 1911, 97.19 per cent.

This contract was assigned by the Grand Trunk Pacific Railway Company to Messrs. Macdonell & O'Brien on the 21st March, 1907, the Grand Trunk Pacific retaining as their profit on the transaction five per cent of the total returns, which, to December 31, 1912, amounted to $158,365.00.

The first return to the contractors on this contract was in the month of November, 1907, or eight months after the contract had been awarded.

The location of these forty-six miles would apparently justify the increased rates paid for excavation as compared with the prices on Contracts Nos. 9 and 10, as the work was in a rather inaccessible part of the country until Contract No. 10 was sufficiently completed to permit of supplies, etc., being brought by rail right on to the work, and the delay of eight months from the date the contract was awarded to the first return made by the contractors, was apparently due to difficulty in getting in touch with the work. The increase in the rates for excavation is, in our opinion, a sufficient compensation to the contractor for the inaccessibility of the work, and the increased profits made possible by these rates should have been expended upon the construction of roads, etc., and in other means taken to complete the organization for this contract so that the work could have been commenced within a month of the date of the awarding of the contract.

The enforcement of the penalty clause, which provides a refund of $5,000.00 a month for delay of this character, we consider applicable to the first seven months of delay, though a reduction in the contractor's profits of $35,000.00 would be small compensation to the Commission for the loss sustained by them.

It will be noted from the summary of tenders that Messrs. Macdonell & O'Brien, who subsequently carried out this work, submitted, originally, a bid which monied out $260,832.00 higher than that of the Grand Trunk Pacific Railway Company, and, in the carrying out of the work, they were satisfied to accept prices five per cent lower than the successful tender, or, in other words, the rates at which they were eventually paid for this work were about eighteen per cent lower than the prices which they submitted in open competition. This point strikes us as being a very positive proof of the fact that the contractors tendering on this work were not influenced in submitting their bids by any fear of keen competition. A contractor desirous of obtaining the work would not submit a bid from which eighteen per cent might be deducted and still permit him to make the profits which the statements for this contract show to have existed, if he had any reason to believe that the work would be the subject of keen competition from a number of contracting firms.

The following statement shows, for a few of the principal items, the rates contained in the main contract and the average rates paid subcontractors who performed the work, and Macdonell & O'Brien sublet to a considerable extent the grading and concrete work.

	Main Contractors.	Subcontractors.
Solid rock per cubic yard	$1.65	$1.13½
Loose rock per cubic yard	.60	.45
Common ex. per cubic yard	.27	.20
Concrete 1-3-5 mixture	12.00	9.50
Concrete 1-3-6 mixture	11.00	8.90
Concrete 1-2-4 mixture	13.00	10.37
Concrete 1-2 mixture	14.00	10.37
Train fill	.50	.42½

From the subcontractors' returns and their rates, the Commission have compiled the following statement:

Value of work done by subcontractors at their rates, $1,449,624.71.
Amount paid Messrs. Macdonell & O'Brien for this work, $2,147,790.58.
Profit, $698,165.87.
Percentage of profit, 32 per cent.

The fact that Messrs. Macdonell & O'Brien suffered a reduction from their original bid of eighteen per cent, and at those reduced prices were in a position to sublet the work so advantageously, is an indication of the free and confident manner with which the original bids were prepared and submitted.

Contract No. 12.

From a point at or near Weymontachene, westerly, being from Mile 656.83 to 763.83. 107 miles.

Chief Engineer's estimate of cost, $5,715,892.33.

Tenders advertised for July 18, 1908.

Tenders received August 20, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, Macdonell & O'Brien	$4,599,284.50	
Tender No. 2 M. P. & J. T. Davis	4,883,713.50	$324,429.00

Contract awarded to Macdonell and O'Brien September 19, 1908.
Date for completion, December 31, 1910.
Work commenced February, 1909.
Security accompanying tender, $150,000.00 cash.
Additional security called for, nil.
Security returned to contractor July, 1910.
$150,000.00 of 10 per cent drawback paid contractor February, 1911.
$80,000.00 of 10 per cent drawback paid contractor July, 1911.
Gross amount of progress estimate to December 31, 1911, $4,194,878.09.
Amount of drawback retained on December 31, 1911, $189,487.80.
Percentage of contract completed to December 31, 1911, 64.69 per cent.

In addition to the two tenders shown in the summary of tenders for this work, the Grand Trunk Pacific Railway Company submitted a proposal to undertake and complete this contract on the basis of cost plus ten per cent and as outlined in the following letter which they submitted with their tender:

August 19, 1908.

The Commissioners of the Transcontinental Railway,
Ottawa, Ontario.

Gentlemen:

The Grand Trunk Pacific Railway Company hereby tender on the work on District "C," from a point designated on the plans of the Commissioners near Weymontachene, in the Province of Quebec, 196.38 miles west of the north abutment of the Quebec Bridge (such point being on the boundary between districts "C" and "D"), westerly for a distance of about 107 miles,—date of completion 31st December, 1910,—on the basis of cost plus 10 per cent, guaranteeing, should the tender be accepted, to give the company's bond with security satisfactory to the Commissioners and the Government.

The reason for taking the liberty to depart, in making this tender, from the rules laid down by the Commissioners of the Transcontinental Railway governing such tender, is that the Grand Trunk Pacific Railway Company is interested beyond anyone else in keeping the cost of this Section down to the lowest possible point that will ensure its being completed in accordance with the standards prescribed, because of the fact that under its agreement with the Government the Grand Trunk Pacific ultimately become responsible for the interest charge, also owing to meagre information furnished by the Commissioners relative to the character of the material to be handled, and the quantities of the several kinds of materials, and the cost of transportation of supplies, material and equipment, which will be one of the large items, due to the great inaccessibility of the work, and realizing that this condition appeals to all practical contractors and that they will, therefore, in fact must put in a figure that will make them safe, which we feel will result in an excessive cost, unless the Commissioners will view the situation as we do and see their way clear to award to the Grand Trunk Pacific the work under the conditions above mentioned and, in case they have not the power, to obtain such power from the Government.

Yours truly,

FRANK W. MORSE,
Vice-President and General Manager.

As this proposal was not in accordance with the terms and conditions under which this work was to be awarded, and was not accompanied by any cheque as called for in the advertisement for tenders, it was not considered by the Commissioners, nor did they take any action thereon.

This work was awarded to Messrs. Macdonell & O'Brien, who, in turn, sublet the grading, etc., at the rates shown in the following comparative statement:

	Main Contractors.	Subcontractors.
Solid rock per cubic yard	$1.60	$1.30
Loose rock per cubic yard	.57	.45
Common ex. per cubic yard	.22	.20
Concrete 1-2 mixture	15.00	10.75
Concrete 1-2-4 mixture	14.00	10.75
Concrete 1-3-5 mixture	13.00	9.81
Concrete 1-3-6 mixture	12.99	9.12

This statement, based on these rates and the work returned for the subcontractors, gives the following figures:

Value of work done by subcontractors at their rates, $1,958,573.24.
Amount paid main contractors for this work, $2,502,046.01.
Profit, $543,472.77.
Percentage of profit, 21 3-4 per cent.

The penalty clause of five thousand dollars a month is applicable to the five months' initial delay in the commencement of work on this contract.

Contract No. 13.

From 107 miles west of Weymontachene, westerly for 114.97 miles, being from Mile 763.83 to 878.80. 114.97 miles.

Chief Engineer's estimate of cost, $4,007,326.73.
Tenders advertised for July 18, 1908.
Tenders received August 20, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, Macdonell & O'Brien	$3,815,279.10	
" No. 2, M. P. & J. T. Davis	3,876,377.60	$61,098.50

Contract awarded to Macdonell & O'Brien, September 19, 1908.
Date for completion, December 31, 1910.
Work commenced, December, 1911.
Security accompanying tender, $150,000.00.
Additional security called for, nil.
Gross amount of progress estimate to December 31, 1911, $1,194.00.
Amount of drawback retained on December 31, 1911, $119.40.
Percentage of contract complete to December 31, 1911, 0.02 per cent.

The 115 miles comprising this contract is located in the most inaccessible portion of the country between Cochrane and Quebec.

The Grand Trunk Pacific Railway Company submitted a tender on this work, their proposal being to complete this contract at cost plus 10 per cent, in accordance with the letter which they submitted with a similar proposal for Contract No. 12. The proposal was not, however, considered by the Commissioners of the Transcontinental Railway.

The contract was awarded to Messrs. Macdonell & O'Brien on September 19, 1908, and the first payment made for work done was in the month of December, 1911, three years and two months after the contract had been awarded, and one year after the date set for completion.

The following list shows the comparison between the rates paid the main contractors for a few of the principal items, and the rates at which they sublet this work:

	Main contractors.	Subcontractors.
Solid rock, per cubic yard	$1.80	$1.45
Loose rock, per cubic yard	.65	.50
Common ex., per cubic yard	.35	.25
Piles delivered per lin. ft	.25	.20
Piles driven per lin. ft	.25	.20
Timber for culverts per M. F. B. M	50.00	30.00
Concrete 1-2 mixture	18.00	14.00
Concrete 1-2-4 mixture	16.00	14.00
Concrete 1-3-5 mixture	16.00	12.00
Concrete 1-3-6 mixture	15.00	11.00

From the quantities returned for the subcontractors at these rates, and which represent, of course, only a small proportion of the work on account of the late start made, a profit of twenty and a third per cent is shown to have been realized by the main contractors.

We consider that the Commissioners of the Transcontinental Railway did not take a firm enough stand with the contractors with regard to the commencement of work on those contracts in isolated parts of the country.

The rates paid for excavation are higher than those prevailing either east or west of Contract No. 13, and should have been compensation to the contractor for any extra expense he would be put to on account of the difficulty experienced in getting to the work prior to the completion of the line and the laying of the rails on either side of this 115 mile stretch.

If the work on Contract No. 14 had been vigorously pushed from its inception, access to Contract No. 13 from the west end would have been made possible a year earlier than it actually took place.

We do not feel, however, that one contractor is in a position to blame another for slow progress made on his own work, as, when the contracts were awarded, no conditions were inserted as to the method of reaching the work under contract, but the contractor undertook to complete a certain mileage of railway by a certain date and the responsibility in this matter cannot be shouldered off on other contractors who have undertaken similar contracts and signed similar agreements. In this case, we feel that Messrs. Macdonell & O'Brien might justly be penalized to the extent of seventy thousand dollars, being represented by the fourteen months' initial delay at five thousand dollars per month, as by the expenditure of this amount in the construction of tote roads and other means of forwarding supplies to the site of operations at the date they were awarded the contracts would, in all probability, have reduced the delay in the completion of this work to the extent of fourteen months.

The contractors were given a higher price because of the inaccessibility of the work and had no valid reason for delaying operations.

The Commissioners should have cancelled the contract for default and relet the work when it became accessible.

Contract No. 14.

From about 8 miles west of Abitibi Crossing, easterly for 150 miles.
Chief Engineer's estimate of cost, $3,985,162.40.
Tenders advertised for January 5, 1907.
Tenders received February 14, 1907.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, Grand Trunk Pacific Railway.....	$3,986,901.42	
Tender No. 1, Pacific Construction Co. (E. F. Fauquier)	4,423,837.11	$436,935.69

Contract awarded to Grand Trunk Pacific Railway, March 14, 1907.
Date for completion, September 1, 1909.
Work commenced, September, 1907.
Security accompanying tender, $225,000 cash.
Additional security called for, nil.
Security returned to contractor, July, 1910.
$375,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $5,246,744.16.
Amount of drawback retained on December 31, 1911, $149,674.41.
Percentage of contract complete to December 31, 1911, 69.75 per cent.

The completion of this 150 miles of railway from Cochrane, easterly, has a most important bearing on the final completion of the through line of railway from Winnipeg to Quebec. It was the gateway to the territory covered by Contract No. 13, and the slow progress made has proved a stumbling block to the early completion of this portion of the line.

The Grand Trunk Pacific Railway Company, in competition with the Pacific Construction Company, in which Mr. E. F. Fauquier was the chief factor, secured the contract.

The Grand Trunk Pacific Railway Company, under an agreement dated September 11, 1907, sublet to the J. H. Reynolds Construction Company, a firm incorporated under the laws of the State of Missouri, that portion of the contract extending easterly from a point fifty miles east of the junction of the Temiskaming and Northern Ontario Railway with the Transcontinental Railway to the end of the contract, this subcontract covering the easterly 100 miles of Contract No. 14.

A further agreement was entered into between the Grand Trunk Pacific Railway Company and the J. H. Reynolds Company on March 11, 1908, whereby the latter firm took over from the Railway Company the construction of the westerly fifty miles of Contract No. 14 under the same terms, conditions and prices as embodied in the agreement of September 11, 1907, so that when the second agreement was signed, the whole one hundred and fifty miles of Contract No. 14 was sublet to the J. H. Reynolds Company.

The J. H. Reynolds Company, however, failed to perform and carry out the construction work covered by these two contracts, and the agreements were, by mutual consent, put an end to and determined on February 9, 1909, at which date the Grand Trunk Pacific Railway Company entered into a new agreement with Messrs. Foley, Welsh & Stewart, covering the entire one hundred and fifty miles under the terms of which the Railway Company undertook to provide the requisite funds for the carrying on of the work, while Messrs. Foley, Welsh & Stewart were to act in the capacity of superintendents and to give the benefit of their organizations to the enterprise.

Agreement provided that the Grand Trunk Pacific Railway Company pay to their agents, Messrs. Foley, Welsh & Stewart, five per cent of the total value of the work as shown by the progress estimates, certified to by the Chief Engineer.

The grading work on this contract was largely handled by gangs of stationmen, the excavation being composed of clay and sand of various consistencies.

The average prices paid the stationmen were:

Solid rock	$1.40 per cubic yard
Loose rock	.40 " " "
Common excavation	.25 " " "

For which the Grand Trunk Pacific Railway Company received:

Solid rock	$1.75 per cubic yard
Loose rock	.65 " " "
Common excavation	.35 " " "

No statement has been prepared showing the profits realized by the Grand Trunk Pacific Railway Company on this work, but, on the assumption that they, in this case, as in their other contracts, would realize about five per cent in profits on the total returns up to December 31, 1912, this profit to the Railway Company would amount to about $300,000.00.

As will be noted, the contract was awarded in March, 1907, and one hundred miles of this work was sublet to the Reynolds Construction Company in September of that year, which was an initial delay of five months in the commencement of operations.

The balance of the contract, comprising the westerly fifty miles, was sublet to the same firm in March, 1908, and in February, 1909, these agreements were put an end to, and Messrs. Foley, Welsh & Stewart took over the work.

The monthly returns under this contract show that from September, 1907, up to March, 1908, less than twenty thousand dollars' worth of work was performed by the J. H. Reynolds Company, and subsequently the value of the biggest month's work which they carried out was forty-eight thousand dollars.

We do not know what assurances the Reynolds Company gave the Grand Trunk Pacific Railway Company with respect to their capability and financial standing, but we consider that the slow progress of the work as indicated by the first six months' returns should have led them to consider the matter very thoroughly before subletting the balance of this contract to the same firm.

The J. H. Reynolds Construction Company practically abandoned operations in January, 1909, as only fifteen hundred dollars' worth of work was done during that month. Messrs. Foley, Welsh & Stewart, the acting managers for the Grand Trunk Pacific Railway Company, took over the entire one hundred and fifty mile contract the next month.

This contract runs through the Northern Ontario clay belt, a large percentage of which clay has been returned under the heading of loose rock.

The engineer's estimate for this work contained 6,689 cubic yards of loose rock, while the returns to December 31, 1911, were 1,137,333 cubic yards of loose rock.

It was on this work that Mr. A. T. Tomlinson occupied the dual position as Inspecting Engineer for the Grand Trunk Pacific Railway Company, and Superintendent for Messrs. Foley, Welsh & Stewart, the contractors.

Contract No. 15.

From about 8 miles west of Abitibi Crossing, westerly 100 miles, being from Mile 1028.80 to 1128.77. 99.77 miles.

Chief Engineer's estimate of cost, $4,124,233.30.

Tenders advertised for February 1, 1908.

Tenders received March 10, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, E. F. & G. E. Fauquier	$3,936,566.00	
" No. 1, Grand Trunk Pacific	4,334,214.00	$397,648.00

Contract awarded to E. F. & G. E. Fauquier, March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, May, 1908.
Security accompanying tender, $150,000 cash.
Additional security called for, nil.
Security returned, June 10, 1910.
$200,000 of 10 per cent drawback paid contractor January, 1911.
$90,000 of 10 per cent drawback paid contractor July, 1911.
Gross amount of progress estimate to December 31, 1911, $4,108,908.10.
Amount of drawback retained on December 31, 1911, $120,890.81.
Percentage of contract complete to December 31, 1911, 87.85 per cent.

A large portion of the grading and concrete work on this contract was sublet, and the following figures show a comparison between the main contractors' rates and the average rates paid subcontractors for various items:

	Main contractors. Price per cubic yard.	Subcontractors. Average price.
Solid rock	$1.85	$1.57
Loose rock	.70	.52
Common excavation	.40	.31
Concrete, 1-3-5	15.00	11.00
Concrete, 1-3-5 in arch culverts	16.00	11.50
Concrete, 1-3-6 in arch culverts	15.50	11.25

Contracts Nos. 16 and 17.

Contract No. 16.

From the west end of Fauquier's Abitibi contract, westerly for about 104.24 miles.

Chief Engineer's estimate of cost, $3,224,718.75.
Tenders advertised for September 12, 1908.
Tenders received September 28, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, M. P. & J. T. Davis	$3,308,048.25	
" No. 2, Grand Trunk Pacific	3,402,584.50	$94,536.25

Contract awarded to M. P. & J. T. Davis, October 29, 1908.
Contract assigned, September 29, 1909, to O'Brien, O'Gorman & McDougall.
Work commenced January, 1910.
Date for completion, December 31, 1910.
Security accompanying tender, $150,000 cash.
Additional security called for, nil.
$50,000 of 10 per cent. drawback paid contractor, January, 1911.
$50,000 of 10 per cent drawback paid contractor, June, 1911.
Gross amount of progress estimate to December 31, 1911, $2,500,695.78.
Amount of drawback retained on December 31, 1911, $150,069.58.
Percentage of contract complete to December 31, 1911, 47.83 per cent

Contract No. 17.

From Mile 1232.85 to 1332.85. 100 miles.
Chief Engineer's estimate of cost, $2,004,330.63.
Tenders advertised for September 12, 1908.
Tenders received September 28, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 1, M. P. & J. T. Davis	$2,019,908.25	
" No. 2, Grand Trunk Pacific Railway	2,016,246.00	$86,337.75

Contract awarded to M. P. & J. T. Davis, October 29, 1908.
Contract assigned, September 29, 1909, to O'Brien, O'Gorman & McDougall.
Date for completion, March, 1911.
Security accompanying tender, $150,000 cash.
Additional security called for, nil.
Gross amount of progress estimate to December 31, 1911, $1,110,914.78.
Amount of drawback retained on December 31, 1911, $111,091.47.
Percentage of contract complete to December 31, 1911, 29.52 per cent.

These two contracts which cover a little over 200 miles of grading, are located due north of Lake Superior, and were, at the time the contract was awarded, in the most inaccessible portion of the country traversed by the National Transcontinental Railway. Both contracts were awarded to Messrs. M. P. & J. T. Davis, on October 29th, 1908, and according to the terms of each contract, they were to be completed on December 31st, 1910.

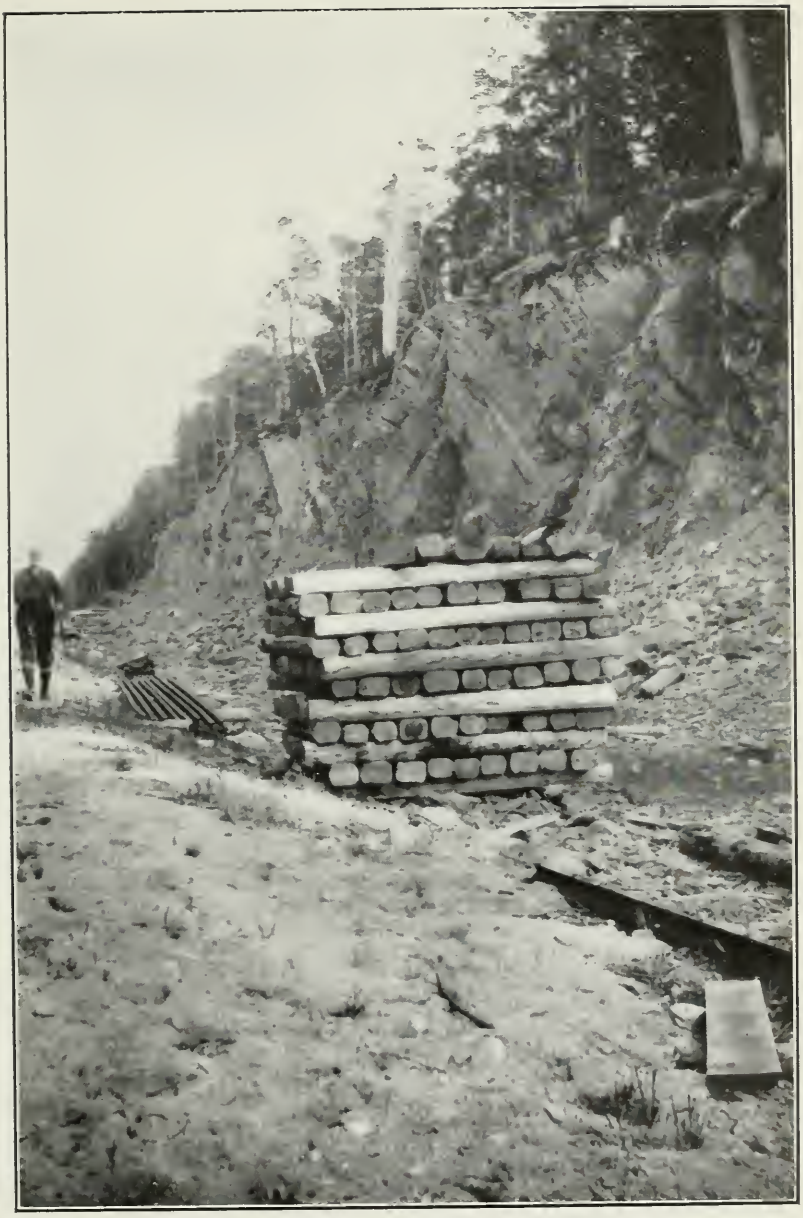
Work was commenced on Contract No. 16 in January, 1910, or 15 months after the awarding of the contract, and on December 31, 1910, which is the date the work was to have been completed, twelve and a half per cent of the work had been done.

Work was not even commenced on Contract No. 17 until March, 1911, or two years and five months after the contract had been awarded, and three months after the date set for its completion. On September 29, 1909, 11 months after the work had been let to Messrs. Davis, they assigned their interest under these two contracts to M. J. O'Brien, J. O'Gorman and Alexander McDougall, trading under the firm name of O'Brien, O'Gorman & McDougall, for the construction of this work, for the consideration and upon the conditions set forth in a deed of transfer passed between these parties on September 16, 1909, under the terms of which Messrs. O'Brien, O'Gorman & McDougall were to pay to Messrs. M. P. & J. T. Davis 10 per cent of the total estimates returned on these works.

This assignment was submitted to and approved by the Commissioners, so that Messrs. O'Brien, O'Gorman & McDougall became the main contractors and payments for work done are made direct to them.

The prices paid for work done under these contracts are very greatly in excess of the average price paid for similar work on other portions of the railway, and the following list shows a number of the rates which were paid on these contracts, together with the average price paid for these items on all other contracts:

Item.	Prices paid.	Average price on other contracts.
1. Clearing	$60.00	$ 50.00
3. Grubbing	175.00	145.00
4. Solid rock	1.90	1.60
5 Loose rock	.85	.60
6. Common excavation	.43	.29
7. Ex. in foundations	1.50	.97
8. Ex. in cofferdams	5.00	3.12
10. Piles delivered	.40	.28½
13. Sheet piling, Wakefield type	100.00	74.00
12. Sheet piling	80.00	57.00
15. Pole drains	.75	.52
16. French stone drains	2.00	1.52
17. Paving in culverts	7.00	4.01
18. Crib filling	4.00	2.24
19. Riprap, hand laid	5.50	2.98
20. Riprap, random	4.00	1.90
22. Round logs in cribs	.40	.26½
23. Cedar mudsills per M	50.00	40.50
24. Framed trestles per M	90.00	52.00
25. Caps, etc., per M	90.00	51.40
26. Ties and guard rails per M	90.00	50.77



District A, Rock Borrow from side of Cutting. Page 26.

District B, Residency 37, Mileage 29.4. Assembled Rock. Page 68.

27.	Stringers per M.	90.00	62.00
28.	Cedar in culverts	50.00	43.50
29.	Plank in crossings	45.00	32.50
30.	Timber in culverts	50.00	43.50
30a.	Timber in cofferdams	60.00	44.00
30b.	Timber in caissons	100.00	66.43
58.	Concrete in 1-2...	30.00	16.40
59.	" 1-2-4	18.00	14.00
60.	" 1-3-5	17.50	13.00
61.	" 1-3-6	16.00	12.00
61a.	" 1-2-5	18.00	14.60
62.	" 1-3-5 in arch culverts	17.50	13.00
63.	" 1-3-6 in arch culverts	16.00	12.42
64.	" 1-3-6 in box culverts	16.00	11.50
65.	" 1-4-8	14.00	10.75
66.	" 1-4-8 in walls of buildings	16.00	11.68
67.	Masonry, first class	25.00	17.00
68.	Masonry, second class	18.00	13.50
69.	Masonry, third class	16.00	10.30
70.	Masonry, dry	10.00	7.00
71.	Masonry, in arch rings	30.00	23.40
76.	Ties, first class	.70	.51
77.	Ties, second class	.65	.46
78.	Switch ties, per M.	70.00	45.00

Because the contractors had done nothing towards the performance of their contract, on August 2, 1909, Mr. Hays, President of the Grand Trunk Pacific, wrote to the Prime Minister urging the cancellation of the contracts, and because it gives succinctly good reasons why it should have been acted on, we reproduce it here:

"My dear Sir Wilfrid:

"On the 29th day of October, 1908, the National Transcontinental Railway Commissioners awarded two contracts for the construction of about 204 miles on Sections "D" and "E" of the National Transcontinental Railway. The first section starting on the west end of Fauquier Brothers' Abitibi contract, in the Province of Ontario, about 100 miles west of Cochrane, for a distance of 104.24 miles; the second contract commencing at the termination of the first and joining Fauquier Brothers' contract north of Lake Nipigon, a distance of 100 miles. By the terms of these contracts the work was to commence immediately after the execution of the agreements to be proceeded with continuously and diligently under the personal supervision of the contractor until completed, the date of completion being 31st December, 1910.

"This work is remote from rail transportation, the closest point being 100 miles west of Cochrane. The prices at which the work was awarded were very high and consequently sufficient to allow contractors to build tote roads or some other means of transportation and getting in supplies so as to immediately commence work. To the best of our knowledge no attempt has been made as yet to open this work, and the indications are that while the work, as before stated, was let at very high prices on account of the difficulties of transportation, it is now the intention of the contractors to haul their material over a portion of the Fauquier Brothers' work track, on which will be completed the present season, say about 50 miles, and haul along right of way to their own section 50 miles distant. This delay will add largely to the profits of the contracts with no commensurate advantage so far as the National Transcontinental Railway is concerned, and under the circumstances I will ask that the Government arrange for the cancellation of existing contracts and ask for new bids which can undoubtedly be obtained

on very much reduced schedule prices,—particularly so if it is known that the contractors will be enabled to haul their material and supplies over such portion of Fauquier Brothers' work as track has been laid upon.

"Yours very truly,
"CHAS. M. HAYS."

Mr. Hays also sent a copy of this letter at a later date to Mr. Parent, asking for the cancellation of the contracts, and that new tenders be called for this work. Mr. Parent refused to take any action, and we do not find that any pressure was brought to bear on the contractors to take steps to ensure the early completion of these two contracts.

The basis of the argument of the Grand Trunk Pacific Railway, for the cancellation of these contracts, is thus expressed, in a letter from Mr. Hays to Mr. Parent, dated October 9, 1909:

"The point I make is that these tenders, those made by the Grand Trunk Pacific itself as well as those made by other contractors, were all based on the work having to be taken up at once and completed within a certain time, thereby making necessary the taking in of supplies overland at a great expense. Several months have been allowed to pass without anything having been done by the contractors. In the meantime, the work immediately adjoining the sections under discussion has been completed to an extent that will permit the bringing in of supplies at a very much lower price, meaning thereby, a much greater profit to the contractor in the sections named than if he had commenced work as was assumed he would be required to do when the contracts were let.

"What we are asking now is that since we are to pay the interest on the cost of this work, and the contractors having not been pushed, that new tenders should be asked and if this is done the work could be let for much more reasonable rates than was the case in the first place, at a saving to the Government and eventually to the Grand Trunk Pacific, which is to pay rental based on the cost."

The position taken by Mr. Hays is absolutely unanswerable. The Commissioner had the right under Section 21 of the contract to take it out of the hands of the contractors. Knowing that Mr. Parent is a lawyer of eminence, we are surprised that he should have written such a reply to Mr. Hays as the following:

14th October, 1909.

"Dear Mr. Hays:

"The essential point in your letter of August 2nd to the Honorable the Premier, regarding certain contracts in districts 'D' and 'E' was a request that they should be cancelled. In my answer, I therefore endeavored to show that, the award having been quite regular in every respect—which you admit—such a step as was suggested would be illegal on the face of it.

"I noticed your contention that the prices were too high, but did not think necessary, for the reason just given, to dwell at very great length on that side of the question. Even granting the propriety of the ground taken, there is little doubt that it would not be sufficient before law to render void actions which were regularly performed.

"For the purpose of discussion, however, I am willing to go into particulars.

"Among other proofs that your company had urged with us that the work referred to should be let at an early date, I shall quote from a letter written by Mr. Morse to the Honorable the Minister of Railways, on May 12th, 1908, which says:

"In order to give the Grand Trunk Pacific an outlet to the east through Northern Ontario, the contracts for the inlet portions of the line between Lake Superior Junction and the T. & N. O. Railway to be let without further delay, it being understood that the surveys are sufficient advanced to permit this being done.

"We complied with these wishes and contracts were signed on the 26th December of the same year. At such a late date in the season the contractors were unable to get their supplies, materials and plant in soon enough to begin operations during the next season.

"Our forms of contract provide, it is true, that work be started at once and pursued diligently until completion, which, in the present case, is to take place on or before December 31st, 1910. Allowance must be made, as you know, for adverse conditions. I need only to point out the fact that we have done so for more than one of your sub-contractors, viz: the J. H. Reynolds Construction Company, who were so much behind in their work and gave us endless trouble. They were unable to carry out the undertaking, and we had at one time to advance money to pay their men. Yet your company would not withdraw its contracts, although they were practically in default. There is surely much less cause and possibility to do so in the present instance, where the facts are altogether different.

"Now we come to your statement, that tenders were all based on the work having to be taken up at once and completed within a certain time. As supplies had to be taken overland at great expense, the prices would naturally be high. Perhaps the work done on the adjoining section may, but the difference would not be as large as you claim. There will be still a considerable distance to cover by 'tote' roads, while haulage by rail through to the point of delivery is no small item, and this remains the same. Labour conditions, which you represented as favorable at the time, must have been taken in account by the tenderers. It is not likely that workingmen can be had to-day as cheaply as could be expected a year ago, during the financial stringency.

"There is no certainty, therefore, that better prices than before could be obtained now if new tenders were to be called for. Any advantage that might be gained on one hand would be more than counterbalanced by the loss of time on the other, not to mention the liability incurred. It would take a year or more before another contractor would get down to work.

"We are told that preparations have been made to proceed actively with the work, and it can be expected that these two sections will be ready in good time.

"In any event, there would be no way of complying with your suggestion, as stated before, unless the contractors would give their consent to the work being let anew, which, it seems, would be a most unusual course in business.

"Yours very truly,
"S. N. PARENT,
"*Chairman.*"

This letter does not contain one reason, which justified the Commission in its refusal. The contractors were clearly at that time a whole year in default and could have no legal or moral claim to any consideration from the Commission.

The total amount of money in Contracts Nos. 16 and 17 paid for work done to the end of October, 1913, amounts to more than $7,400,000, and, as already pointed out, the agreement by which Messrs. M. P. & J. T. Davis transferred these contracts to Messrs. O'Brien, O'Gorman & McDougall, provided for them a profit of 10 per cent of this sum, so that Messrs. M. P. & J. T. Davis have received a bonus from the country of over $740,000 for which they gave no return.

This Commission finds that no action was taken to enforce the early commencement work on these two contracts, nor, when the assignment of these contracts was brought to the Commissioners for their approval eleven months after the contracts had been awarded, were any steps taken to annul the gift of $740,000 to Messrs. M. P. & J. T. Davis.

To sum up, if the work had been immediately proceeded with, the high prices paid for the work under these contracts, would have been justifiable to some extent on account of the isolation of the section. The contractors, however, were permitted to hold the contract until it was salable at an enormous profit, when the site became easily accessible by the construction of the road to its east and west limits.

The Commissioner's refusal to cancel the contracts and relet the work, under the circumstances related, was absolutely inexcusable.

Contract No. 18.

From about 19 1-2 miles west of Crossing of Mud River, easterly 75 miles, being from Mile 1332.85 to 1407.85.

Chief Engineer's estimate of cost, $2,326,333.33.

Tenders advertised for February 1, 1908.

Tenders received March 10, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 3, E. F. & G. E. Fauquier	$2,101,499.88	
" No. 2, Chambers Bros. & McQuigge	2,192,509.15	$ 91,009.27
" No. 1, J. D. McArthur	2,325,777.50	133,268.35
" No. 4, Grand Trunk Pacific Co.	2,565,186.10	239,408.60
Difference between highest and lowest tenders		$463,686.22

Contract awarded to E. F. & G. E. Fauquier on March 28, 1908.
Date for completion, September 1, 1910.
Work commenced, July, 1908.
Security accompanying tender, $100,000 cash.
Additional security called for, nil.
Security returned to contractor, June 10, 1910.
$75,000 of 10 per cent drawback paid contractor, January, 1911.
$75,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $1,915,855.09.
Amount of drawback retained on December 31, 1911, $41,585.51.
Percentage of contract complete to December 31, 1911, 66.03 per cent.

This contract covers 75 miles of railway construction on District "E," lying immediately north of Lake Nipigon. In accordance with the usual custom, the engineers compiled an estimate of the approximate quantities of grading and work to be done on this 75 miles of construction. This estimate was made so as to be able to arrive at the comparative values of the tenders when received, the various items being moneyed out at the tenderers' prices as previously

explained. In the approximate estimate prepared by the engineers there is shown under Item 74 (e) an estimated quantity of 655,400 cubic yards of moss to be removed. This yardage of moss is half as much as the entire quantities allowed for excavation in the approximate estimate, which are as follows:

Item 4.	Solid rock	225,845	cubic yards
" 5.	Loose rock and other materials.....	25,900	" "
" 6.	Common excavation	1,046,000	" "
		1,297,745	" "

This yardage of moss in the approximate estimate was entirely out of proportion to the actual amount encountered on the work, as to date there has only been returned about 14,000 cubic yards. The 655,400 cubic yards of moss would provide a carpet of this material 20 feet wide and more than two feet thick over the entire 75 miles. This approximate estimate was prepared in the District Engineer's office at Nipigon under the supervision of District Engineer Armstrong, and in a letter to Mr. Gordon Grant, under date of October 14, 1913, District Engineer Armstrong explains the inclusion of the large quantity of moss, as follows:

"With regard to moss, this is the one item in the schedule that was not "seriously considered. It was never mentioned in returns of quantities by the "locating engineers and personally I knew nothing of what quantity there might "be, but in my travels to the locating parties I knew that in some cases in the "woods it was a couple of feet thick, and as this item was in the schedule. Form "89, I took the profile and on level swampy ground simply added enough moss "to cover, in case it might have to be removed."

Four contractors tendered on this work and the following statement shows a comparison of the prices for the main items in the engineers' estimate of the work to be done under this contract:

	Tenderers' price per cubic yard.			
Tenderer.	Solid rock.	Loose rock.	Common excavation.	Moss.
E. F. & G. E. Fauquier.....	$1.80	.60	.38	.12
Chambers Bros. & McQuigge....	1.75	.65	.31	.35
J. D. McArthur	1.80	.65	.38	.35
G. T. P. Railway Co.....	1.85	.70	.45	.32

It will be noted from these figures that Messrs. Fauquier Brothers' price for the removal of moss was very much lower than that of the other three tenderers. The tenders were moneyed out in accordance with the estimate prepared and Messrs. Fauquier Brothers' tender was found to be about $91,000 less than the next lowest bid, which was that of Messrs. Chambers Brothers & McQuigge, and the contract was awarded accordingly.

If the price tendered by Messrs. Chambers & McQuigge for the removal of moss had been 12 cents instead of 35 cents, their tender would have been lower than Messrs. Fauquier Brothers by $58,000. The Commission have had the total quantities returned on this contract up to October 31, 1912, moneyed out at Messrs. Fauquier Brothers' prices and also at the prices contained in the tender put in by Messrs. Chambers Brothers & McQuigge, and they find that if the contract had been awarded to this latter firm there would have been a saving effected of about $33,000. This is on account of the fact that the prices contained in Messrs. Chambers Brothers' tender are generally lower than those contained in Messrs. Fauquier Brothers' tender. The large yardage of moss contained in the engineers' estimate was the governing factor in the valuation of the tenders received for the 75 miles of railway construction.

Mr. E. F. Fauquier, in his evidence on page 491 states that he knew that a large amount of moss was being estimated upon this work, that he obtained information from some of the junior engineers, and that he expected that his tender would have a very favorable showing on account of the price he estimated for the removal of moss per cubic yard.

Mr. E. F. Fauquier in giving evidence stated that he appreciated that the Engineering Department was under the impression that there was a very large quantity of moss to be removed on this contract and he expected that their estimates would show a large quantity of moss, while his information was that there was in reality a very small quantity, and he expected that if his rivals put in a high price for the removal of moss as he was putting in a lower price, he would probably get the contract, and in this he was right.

His tender was $150,000 less for moss than that of Chambers Brothers & McQuigge. Had the moss been estimated even approximately correctly, Fauquier Brothers would not have been awarded the contract. The result is that they have the contract although they were not the lowest tenderer for the work really to be done.

This contract, Number 18, was completed and dated March 28, 1908. On April 6, 1908, one week after the signing of the contract, Fauquier Brothers sublet it to Messrs. Chambers Brothers, McCaffery & McQuigge, who were doing business under the name of the Nipigon Construction Company. Under the terms of this assignment Messrs. Fauquier Brothers were to receive four per cent of the total amount of the final estimate returned under this contract and were indemnified by the assignee against the security which they had furnished the Government. The result is, that the people who were really the lowest tenderers had to pay a premium to Fauquier Brothers to obtain the contract, which, had the moss estimate been correct, they would have been awarded by the Commission and the Commission on account of this error had to pay a larger price for the work actually done.

As to whether or not these tenderers were given advance information (see article on Awarding Contracts, p. 22), Mr. E. F. Fauquier was examined and the following is taken from his evidence:

Q. Do you know that if the engineers had not made an absurd mistake, as to the quantity of moss in that country, that your tender would not have been the lowest?—A. I have been told so.

Q. Moss is easily removed?—A. Yes.

Q. Yet the engineers estimated that there were 655,000 cubic yards of moss in there; was there any such quantity?—A. I do not know that we were allowed anything for more.

Q. You were allowed 13,000 yards?—A. Yes.

Q. And that was about all the moss that was on the right of way?—A. I think so.

Q. Your price on that contract was 12 cents for moss? Do you remember that?—A. I think it was about twelve cents. On looking at the tender I find it was 12 cents.

Q. And Chambers tendered at 35 cents for moss?—A. Yes, it was an absurd price. Chambers told me he tendered at somewhere about that, and that is all I know about it.

Q. Your tender was $1.80 for solid rock there?—A. Yes.

Q. And for loose rock, 60 cents?—A. Yes.

Q. And for common excavation, 38 cents?—A. Yes.

Q. And Chambers tendered for $1.75 solid rock, 65 cents for loose rock, and 31 cents for common excavation?—A. I do not know as to that.

Q. And if it had not been for the moss, he would have got the contract?—A. Possibly.

Q. Do you mean to say it is impossible for you to tell us?—A. It is impossible for me to trace back how I got it. I got it from some of the junior engineers, I was enquiring about the whole contract from one and another, and I got the information.

Q. I want you to make your position as clear as you can.—A. I had the advantage of that knowledge; I do not mind acknowledging it; I do not want to husband it up in any way.

Q. And the fact that you tendered 12 cents on moss. . . .—A. I would have tendered that anyway.

Q. At all events, it gave you the contract?—A. Yes, but I should have tendered about twelve cents on moss, whether I knew it or not. You know yourself that it is easy to remove moss.

Q. But you did have knowledge that there was going to be a large amount of moss figured on that contract, and you rather expected it?—A. Yes.

Q. And you knew when your bid was going in that your moss bid was going to get you the contract?—A. I expected it would be very favorable.

Contract No. 19.

From the westerly end of Fauquier's contract, westerly 126.19 miles, being from through mileage 1407.85 to 1534.04.

Chief Engineer's estimate of cost. $7,864,791.28.

Tenders advertised for July 1, 1908.

Tenders received August 20, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, O'Brien & Fowler	$5,967,208.75	
" No. 3. Nipigon Construction Co.	6,403,536.50	$436.327.75
" No. 1, J. W. Stewart	6,450,334.50	46,798.00
" No. 4, Craig & Thomson	6,553,761.25	103,426.75
Difference between highest and lowest tenders		$586,552.50

Contract awarded to O'Brien, Fowler & McDougall, September 19, 1908.
Date for completion, September 1, 1910.
Work commenced, November, 1908.
Security accompanying tender, $200,000 cash.
Additional security called for, nil.
Security returned to contractor, June 1, 1910.
$260,000 of 10 per cent drawback paid contractor, January, 1911.
$80,000 of 10 per cent drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $4,812,513.27.
Amount of drawback retained on December 31, 1911, $141,251.32.
Percentage of contract complete to December 31, 1911, 79.25 per cent.

Contract No. 20.

(and No. 20-A.)

From near Dog Lake westerly about 24.13 miles, being from Mile 1534.04 to 1557.80.

Chief Engineer's estimate of cost, $1,513,247.00.
Tenders advertised for July 18, 1908.
Tenders received August 20, 1908.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 2, O'Brien & McDougall	$1,158,258.25	
" No. 1, J. W. Stewart	1,284,979.50	$126,721.25

Contract awarded to O'Brien & McDougall, September 19, 1908.
Date for completion, September 1, 1909.
Work commenced, October, 1908.
Security accompanying tender, $100,000.
Additional security called for, nil.
Security returned to contractor, June 1, 1910.
$120,000 drawback paid contractor, July, 1911.
Gross amount of progress estimate to December 31, 1911, $2,000,437.56.
Amount of drawback retained on December 31, 1911, $47,257.20.
Percentage of contract complete to December 31, 1911, 96.69 per cent.

The eastern eleven and one-half (11 1-2) miles of Contract No. 20 is known as Contract No. 20-A, though the work on this portion is included in Contract No. 20, and the work was performed by Messrs. O'Brien & McDougall, and the payment for the work is made to them. It is designated as Contract No. 20-A for the reason that it originally constituted a portion of the branch line constructed by the Grand Trunk Pacific Railway Company from Fort William to join the main line of the National Transcontinental Railway.

These eleven and a half miles of railway were partially completed when the Commission were about to let contracts for Contract No. 20. It was then found that if the line surveyed and located by the Government were adopted and constructed, they would be paralleling the Grand Trunk Pacific branch line for a distance of about 11 1-2 miles. The line adopted by the Government was known as the northerly route, and the line partially constructed by the Grand Trunk Pacific Railway was known as the southerly route, and the Commissioners, in considering this matter, had the following situation before them:

They were bound to pay for the construction of these 11 1-2 miles of railway. If they adopted the northerly route and built the railway on that line, when completed the Grand Trunk Pacific Railway Company would have to operate two lines of railway, paralleling each other, over a distance of 11 1-2 miles. If the southerly route were chosen, only one line of railway need be constructed and operated.

The Commissioners decided upon the adoption of the southerly route, and took over from the Grand Trunk Pacific Railway Company the 11 1-2 miles of their partially constructed branch line and converted it into the main line of the National Transcontinental Railway. It was to the advantage of the Grand Trunk Pacific Railway that the southerly route was decided upon, for they were thereby saved the construction of 11 1-2 miles of branch line at about $50,000 per mile, or, in round figures, the sum of $575,000.

Mr. Frank W. Morse realized this advantage and wrote many letters to the Commission, urging the adoption of the southerly line, and in one dated July 2, 1911, he says:

> "Lengthening the main line one mile east of the Lake Superior connection only affects a small number of trains and hence a small percentage in operating and maintenance expenses, as compared with shortening the Lake Superior branch 11¼ miles with its greater number of trains."

The objection to the adoption of the southerly line as the main line of the National Transcontinental Railway, was that it would increase the length of their main line approximately a third of a mile, and their cost of construction approximately $197,000. Mr. Lumsden's report on this matter is as follows:

"Ottawa, September 11th, 1908.

"The Commissioners of the
Transcontinental Railway,
Ottawa, Ont.

"Sirs:—

"In reference to mine of the 25th August handing in details of comparison of tenders, I beg to supplement the same by adding to the report in regard to Section No. 6, that in my opinion the southerly route, though approximately one-third of a mile longer, and costing—taking into consideration divisional yard—approximately $197,000 more than the northerly route, should be adopted for the following reasons, viz:

"1. It will avoid the duplication of the construction of about 11½ miles of road.

"2. It will afford better accommodation for divisional yards.

"3. It will save the operation of 11½ miles for all time, which advantage will accrue to the Government in the event of the taking over of the branch line at any time in the future.

"4. The interest on the additional cost will, under the terms of the lease of the Eastern Division, be borne by the G. T. P.

"Your obedient servant.

"HUGH D. LUMSDEN,
"*Chief Engineer.*"

The points about this case are as follows:

The main line of the Transcontinental Railway was increased in length and in cost by $197,000 (estimated). The branch line of the Grand Trunk Pacific was reduced in length by 11 1-2 miles (estimated cost $575,000).

We find that the extra expenditure made on this account by the Government should have been properly charged to the Grand Trunk Pacific Railway Company and an agreement should have been entered into between the two parties, providing for the restitution of this amount of capital to the Government.

Contract No. 21.

From or near Winnipeg to Peninsula Crossing, about 245 miles, being from mile 1557.80 to 1804.47. 246.67 miles. Dist. "F."

Chief Engineer's estimate of cost, $13,756,023.54.

Tenders advertised for, February 8, 1906.

Tenders received, March 12, 1906.

SUMMARY OF TENDERS.

		Difference between tenders.
Tender No. 4, J. D. McArthur	$13,010,399.00	
" No. 2, Pacific Construction Co. (Fauquier)	13,028,753.00	$18,354.00
" No. 3, G. T. P. Railway Co.	13,991,860.00	963,107.00
" No. 1, The McArthur Construction Company	17,048,813.00	3,056,953.00
Difference between the highest and lowest tenders		$4,038,414.00

Contract awarded to J. D. McArthur, May 15, 1906.
Date for completion, September 1, 1907.
Security accompanying tender, $400,000.
Additional security required, $910,000.
$400,000 of drawback paid April 6, 1908.
$500,000 of drawback paid December 5, 1908.
$150,000 of drawback paid February 22, 1911.
Gross amount of progress estimate to December 31, 1911, $18,268,710.54.
Amount of drawback retained on December 31, 1911, $154,446.92.
Percentage of contract completed to December 31, 1911, 94.60 per cent.

The Commissioners could not agree upon the awarding of this contract, and the Chairman, in his minority report to the Minister of Railways and Canals, wrote as follows:

"As for District 'F,' as already stated, the two lowest tenders for this section are also several hundred thousand dollars below our engineer's estimate, but our engineers are of the opinion in that case that the difference between the lowest tenders and their estimates is not sufficient to prevent the proper completion of the work. For the same reasons as have already been given in regards to District 'B,' especially in order to prevent any possible delay in the performance of the contract, I sincerely believe that the only tenderer personally interested and in a position to complete this work within the stipulated time, viz.: the 1st of September, 1907, is the Grand Trunk Pacific Railway Company, inasmuch as they already have important work in progress on their Lake Superior branch, and would have exceptional facilities for the transport of material, supplies, etc. This section being ready for operation at an early date, the Government would thus be sooner enabled to draw a revenue therefrom, and it will, moreover, facilitate the construction of the Western Division."

Commissioners Melsaac, Reid and Young did not concur with opinions held by Mr. Parent, and recommended the acceptance of the lowest tender, namely that of J. D. McArthur, with the stipulation "that the security required under Section 17, Chapter 71, 1903, be fixed at ten per cent of the amount of the tender, or $1,301,039, besides the ten per cent retained under Section 34 of the contract."

The acceptance of McArthur's tender was approved of by order in Council on April 14th, 1906.

The security for the completion of his contract, asked of McArthur, was the amount recommended—$1,301,000.00—and the Commissioners returned to him the cheque which accompanied his tender, and accepted in lieu thereof deposit slips amounting to the above named sum which were to be cashed only in the event of the contract going by default.

There were conditions in connection with the moneying out of their tenders for this contract which were a divergence from the usual practice.

The form of tender contained one hundred and one items for which the contractor had to submit prices.

Mr. McArthur, in submitting his tender, filled in prices for only fifty-eight items, leaving forty-three spaces blank.

In the estimate prepared by the Chief Engineer of the cost of this grading contract, items covering sixty-four features of construction were involved, and

when it became necessary to money out the tenders received in order to arrive at their comparative values, it was found that there were fourteen items contained in this estimate for which McArthur had submitted no prices.

The original sheets for Tender No. 4 (J. D. McArthur's), which contain the tenderers' prices, and which are designated by the number of the tender only, and are those which were handed the Chief Engineer by the Commissioners for the purpose of moneying out the tenders, have filled in, in red ink on them, prices for forty of the items enumerated, and these sheets bear the following notation (see Exhibit No. 29):

"Note.—Red figures show prices made up by Chief Engineer, and for the items so marked no prices were quoted in Tender No. 4.".

The following is a list of the forty items for which the rates have been filled in in red ink:

Item.		Rate.
15.	Pole drains	.25
21.	Piling out reserved stone from rock cuttings	1.00
28.	Cedar timber in culverts	40.00
32.	Vitrified pipe culverts, 14"	1.25
33.	" " " 15"	1.35
35.	Reinforced concrete pipe, 12"	1.20
36.	" " " 14"	1.30
37.	" " " 16"	1.40
38.	" " " 18"	1.50
39.	" " " 20"	1.60
40.	" " " 24"	1.70
41.	" " " 30"	2.00
42.	" " " 36"	2.50
43.	" " " 42"	3.50
44.	" " " 48"	4.50
45.	" " " 54"	5.50
46.	" " " 60"	6.50
47.	4-inch tile drains	.05
48.	Cast iron pipe culverts, 16"	2.30
49.	" " " " 18"	3.00
50.	" " " " 20"	3.50
54.	" " " " 42"	6.80
55.	" " " " 48"	7.50
56.	" " " " 54"	8.00
57.	" " " " 60"	10.00
60.	Concrete, 1-3-5	.12.00
62.	Concrete, 1-3-5 in arch culverts	13.00
64.	Concrete, 1-3-6 in box culverts	11.00
66.	Concrete, 1-4-8, walls of buildings	10.00
81.	Semaphores at stations	550.00
82.	Interlocking appliances	6,000.00
83.	Each additional lever	200.00
86.	Tunnels rock section unlined	75.00
87.	Tunnels lined	85.00
88.	Tunnels concrete lining	15.00
89.	Masonry lining	15.00
90.	Drainage tunnels	25.00
93.	Turntables	3,000.00
94.	Track scales	1,000.00
95.	Tunnel shaft	5.00

Mr. Lumsden states that, to the best of his recollection, he filled these figures in himself, personally, that he called attention to the fact that one of these tenders had not any prices in for a number of items which they were bound to use a lot of, and that he was instructed to fill them in, and that as

these instructions emanated from the men who were letting the contract he did not feel nervous about fixing up a tender (which subsequently developed into the winning tender) in this way. He did not recollect discussing the matter with Mr. McArthur.

Mr. McArthur explains that when putting in his tender he figures that the items left blank would not amount to very much, and that when the contract was being awarded it was left to the Chief Engineer, and, though he does not recollect the conversation with Mr. Lumsden, he and Mr. Lumsden discussed the question together, but he cannot say whether at the time of this discussion Mr. Lumsden had already inserted his figures in the blank spaces in the McArthur tender or not.

The following list shows the engineers' prices which were used in the final moneying out of the McArthur tender, and also the engineers' estimated quantities of each item:

Item.		
15.	Pole drains, 4,900 lin. ft. at 25c	$1,225.00
21.	Piling out reserved stone, 850 cu. yds. at $1.00	850.00
38.	Reinforced concrete pipe, 18", 872 lin. ft. at $1.50	1,308.00
40.	Reinforced concrete pipe, 24", 396 lin. ft. at $1.70	670.20
60.	Concrete, 1-3-5 1,000 cu. yds. at $12.00	12,000.00
62.	Concrete, 1-3-5 in arch culverts, 2,651 cu. yds. at $13.00.	34,463.00
64.	Concrete, 1-3-6, in box culverts, 212 cu. yds. at $11.00..	2,332.00
66.	Concrete, 1-4-8, walls of buildings, 2,000 cu. yds at $10..	20,000.00
81.	Semaphores and stations, 34 at $550	18,700.00
82.	Interlocking appliances, 1 at $6,000	6,000.00
83.	Each additional lever, 5 at $200	1,000.00
90.	Drainage tunnels, 250 lin. ft. at $25	6,250.00
93.	Turntables, 3 at $3,000	9,000.00
94.	Track scales, 2 at $1,000	2,000.00

In order to draw attention to the peculiar condition brought about by the insertion of these prices, we append here a list of the rates submitted for the other concrete items in the original tender, these were:

Item.		
58.	Concrete facing mixture	$15.00
59.	Concrete coping course	15.00
61.	Concrete, 1-3-6	15.00
63.	Concrete in arch culverts, 1-3-6	15.00
65.	Concrete in ordinary foundations, 1-4-8	13.00

from which it will be noted that the richer concrete, namely the 1-3-5 mixture, which requires a greater quantity of cement (the governing feature of cost) is $2.00, $3.00 and less per cubic yard than the 1-3-6 mixture.

Mr. McArthur had told this Commission that he intended that the prices which he submitted for the several concrete items should govern those items which he had left blank, and that he intended his tender to be for:

Item.							
60.	$15.00	per	cubic	yard,	instead	of	$12.00
62.	15.00	"	"	"	"	"	13.00
64.	15.00	"	"	"	"	"	11.00
66.	13.00	"	"	"	"	"	10.00

and, as will be noted from the foregoing figures, this would have made a difference in the total value of the tender of for

Item.		
60.	1,000 cu. yds. at $3.00	$3,000.00
62.	2,651 cu. yds. at $2.00	5,302.00
64.	212 cu. yds. at $4.00	848.00
66.	2,000 cu. yds. at $3.00	6,000.00
		$15,150.00

and increased McArthur's tender to $13,010,339.00 plus $15,150—$13,025,549.00.

The insertion of these forty items by the Chief Engineer, while affecting the value of the tender to the amount stated, did not change the order in which the tenders ranked. If McArthur's tender had been monied out at the prices which he intended to submit, his would still have been the lowest by $3,204.00.

These unbalanced prices, however, caused some considerable discussion in the carrying out of the work.

During Mr. Lumsden's regime as Chief Engineer it was evidently considered good business to pay Contractor McArthur for the 1-3-6 concrete mixture at fifteen dollars per cubic yard when he had a price in his schedule for 1-3-5 concrete (the better mixture) at twelve dollars per cubic yard.

We feel that Mr. Lumsden could not have taken any very firm stand in this matter on account of the fact that it was he (though acting under instructions) placed these prices in the tender and so finally caused their adoption.

A further perusal of the sheet containing the tenders as monied out shows a much more serious error in regards to the items for piling, and one which had the direct result of changing not only the values of the tenders but their order of ranking.

In tender No. 2, the rates submitted for Items 10, Piling Delivered, and 11, Piling Driven, are 20c. and 35c.

In tender No. 4 (McArthur's) these figures are 25c and 15c respectively—with the notation opposite the latter price "driving only."

Without taking into consideration that in Tender No. 2 the cost of the piles themselves were included in the 35c. rate, these items were extended as follows:

Item.		Tender No. 2.	Tender No. 4.	
10.	Piling delivered, 282,555 lin. ft. at 20c	$56,511.00	at 25c,	$70,638.70
11.	Piling driven, 258,860 lin. ft. at 35c	90,601.00	at 15c,	38,829.00
		$147,112.00		$109,467.70
	Total cost of piling—Tender 2	$147,112.00		
	Tender 4	109,467.75		
		$37,644.25		

thereby giving McArthur an advantage over his competitors by reducing the total value of his tender by $64,715.00, which is the value of the piles themselves at his rate of 25c., and which sum should have been included under Item No. 11 in order to make a true comparison as to the values of the tender.

Mr. Lumsden contends that all the tenderers intended their price for "piling driven" to be the cost of driving only.

These figures for the four tenders are:

Tender No. 1	65c	
" No. 2	35c	
" No. 3	24c	
" No. 4	15c	(driving only)

and they certainly do not represent that condition.

While Mr. MacPherson states that the tenders as moneyed out convey a doubtful meaning as to their value, Mr. Monsarrat is definite that to obtain a true comparison, the value of the piles themselves should have been added to Tender No. 4.

As will be noted from the foregoing figures it was a combination of peculiar circumstances which resulted in this $13,000,000.00 contract being awarded to Mr. McArthur.

Tender No. 2 amounted to	$13,028,753.25
" No. 4 (McArthur's) amounted to	13,010,398.92
	$18,354.43

leaving a balance in McArthur's favor of $18,354.43 and from this balance should be deducted for the prices for concrete which Mr. Lumsden filled in, and which Mr. McArthur intended should be $2.00, $3.00 and $4.00 per cubic yard higher, the sum of $15,154.00, and for the cost of the piling which was omitted from his tender when moneying out, the sum of $64,715.00 which leaves Tender No. 2 the lowest by $61,514.57, and to which tenderer the contract should have been awarded.

The rates for excavation submitted in Tender No. 2 are all lower than those at which McArthur was paid, and a computation based on the final quantities returned on Contract No. 21 shows that if the work had been awarded to the lowest tenderer at his rates, the amount paid out would have been over $200,000.00 less than what it has actually cost.

In his evidence before this Commission the following questions were put and answers given by J. D. McArthur:—

> Q. Do I understand you to say that you did not see or get any information which gave you any knowledge of what the preliminary estimate of the engineers was as to the cost of the work?—A. No. I did not get it in figures more than it was approximately spoken of.
>
> Q. By whom?—A. Well, by Major Hodgins.
>
> Q. Do you know whether he had a copy of the preliminary estimates made in the office by the engineers?—A. No. I do not.
>
> Q. He did not show you any?—A. No.
>
> Q. Did any of the Commissioners show you any?—A. No, not by really showing it to me. They may have talked over it, but I do not recollect them showing me the figures.
>
> Q. Did any of the Commissioners tell you approximately what the estimates of the engineers were?—A. I think probably they did, just the same as Major Hodgins did, and he was down here at the time.
>
> Q. Who probably told you?—A. I guess probably Young told me and Reid.
>
> Q. So that you had a more or less accurate idea of what the Commission expected this work would cost?—A. These figures were mentioned.

By reference to the article on awarding the contracts it will be seen that this was quite irregular and an advantage contractors generally were not given.

CLASSIFICATION OF EXCAVATION.

The item in the general classification which caused most of the trouble among the engineers themselves, between the engineers and the contractors and between the engineers and the Commissioners, was the clause governing classification.

It should be remembered that all contracts were let on the unit basis, whereby a certain price per cubic yard was to be paid for each of the various kinds of material to be removed.

It is the common practice in Canada and the United States to contract for the removal of material, ranged under different heads, at unit prices, so that all experienced Canadian engineers, contractors, sub-contractors and stationmen know just what they are undertaking when they enter on such work, under such contracts. It has always been considered a contractor's privilege to endeavor to obtain a higher classification for materials, upon any plausible pretext, and the fact that the different classes are so intermingled, and because cuts of practically the same material differ slightly from each other, contractors are never at a loss for reasons to support their arguments for better terms, and experienced engineers know that they will be constantly bombarded with demands, more or less sincere, to modify their classification in favor of the contractors.

The very nature of the case, then, required that railway construction engineers should be men of integrity and experience, as their position makes them, in fact, arbitrators between the contractors and the railways, and very large discretionary powers are necessarily given to them.

The following is a copy of the Grading Specification used in all contracts on this railway:

33. Grading will be commonly classified under the following heads: "Solid Rock Excavation"; "Loose Rock" and "Common Excavation."

34. *Solid Rock Excavation.*—Solid rock excavation will include all rock found in ledges or masses of more than one cubic yard, which, in the judgment of the engineer, may be best removed by blasting.

35. *Loose Rock.*—All large stones and boulders measuring more than one cubic foot and less than one cubic yard, and all loose rock, whether in situ or otherwise, that may be removed by hand, pick or bar, all cemented gravel, indurated clay and other materials, that cannot, in the judgment of the engineer, be ploughed with a 10-inch grading plough, behind a team of six good horses, properly handled, and without the necessity of blasting, although blasting may be occasionally resorted to, shall be classified as "loose rock."

36. *Common Excavation.*—Common excavation will include all earth, free gravel or other material of any character whatever not classified as solid or loose rock.

As might be expected when vast quantities of material had to be classified and more than sixty millions of dollars was involved, very many disputes arose over the interpretation of these specifications, adding another to the multitude of examples that nothing which man can express in words is not open to forced construction, differing from what he plainly intended. It appears to this Commission that to the impartial reader there is no difficulty in understanding the true meaning of these specifications.

Clause 34 clearly limits solid rock excavation to "rock," that is, no material which is not rock can be classified under this head. Secondly, That rock must be in boulders, ledges or fragments, each one of which measures more than one cubic yard.

So far, the engineer has no discretion to exercise, but the remainder of the clause: "which, in the judgment of the engineer may best be removed by blasting," makes it his duty, not to allow even the above-described rock as solid rock excavation, if he believes blasting is not reasonably required for its economical removal. Thus, if he were asked to class as "solid rock excavation" a quantity of disintegrated granite or soft slate, which could be removed by shovel as earth or sand, he would not be justified, notwithstanding the fact that it was "rock," in classifying it under this heading.

Loose Rock: To simplify this rather involved paragraph, it may be paraphrased as follows: Under this heading should be classified:

(a) All lose rock or stones which measure more than one cubic foot and less than one cubic yard;

(b) All loose rock which may be removed by hand, pick or bar;

(c) All cemented gravel, indurated clay and other material which cannot, in the judgment of the engineer be ploughed (as described) without first being blasted. (The fact, however, that over a large body of material blasting may be occasionally used to make some small portion of it ploughable, shall not bring the whole mass within this class.)

36. *Common Excavation.*—Common excavation will include all earth, free gravel or other material of any character whatever, not classified as solid or loose rock.

It it clear, therefore, that loose rock includes everything excepting solid rock larger than one cubic yard, which requires to be blasted for its removal, and that common excavation includes everything which is not described in clauses 34 or 35.

As will be seen, hereafter, vast quantities of material which was not rock, has been classified and paid for by the Commission as solid rock excavation, and as it was admitted in their evidence by some of the chief contractors who had had many years experience contracting for railroads, that they were allowed as solid rock, material which they had never known to be classified as such before under any other contract.

Shortly after the work commenced, Mr. Woods, Assistant Chief Engineer of the Grand Trunk Pacific, protested to the contractors, in a letter dated October 7, 1907, against the classification being allowed to O'Brien & Macdonell at La Tuque in the Province of Quebec. He said:

> "In nearly every case where the cutting was not entirely of ledge, the estimate given for solid rock is double or more than double what it should be. In fact the specifications have been entirely ignored and an excessive allowance made, not by reason of an error in judgment, but, as I understand it, by special instructions from the Assistant District Engineer."

He then gives illustrations. (See Exhibit No. 15.)

Following this letter, the Commissioners, their Chief Engineer, Mr. Woods, Mr. Armstrong and the contractors, Mr. M. J. O'Brien and Mr. M. P. Davis, met at La Tuque to discuss the question on the ground.

The Chief Engineer, Mr. Woods, and Mr. Armstrong contended that under the specification the material should be classified as loose rock (p. 390) while the contractors, and, according to the evidence of Mr. Lumsden, the Chairman and Mr. McIsaac agreed that it should be solid rock, taking the position that because in their judgment the material required blasting for its economical removal, it was solid rock under the specification. No agreement was arrived at, the contractors obtained under their representations of the facts opinions from several leading counsel, copies of which were sent to the Commission, which supported their contention as to the classification. What the contention of the contractors was was made clear by the evidence of Mr. M. J. O'Brien as taken before this Commission.

District B, Division A, Mileage 189.5. Assembled Rock. Page 64.

District B, Residency **23**, Mileage **81.1.** Assembled Rock. Page **68.**

Mr. O'Brien, who is, perhaps, one of the most experienced and largest contractors in America, admitted, however, that he had never been paid for such material as solid rock by any other railway. (p. 537.)

He was asked:

> Q. What is your contention? What under these specifications were you entitled to have classified as 'solid rock'?—A. Where the cutting is either one thing or another, mixed up, and can best be removed by blasting, I don't care what it is, if that cut is a solid mass of indurated earth and we cannot take it out any other way economically except by blasting, we must resort to blasting, and we are properly entitled to that as solid rock excavation.

The Chairman of the Commission gave copies of these legal opinions (p. 390) obtained by the contractors, to the Chief Engineer, and suggested that he consult Mr. Collingwood Schreiber. Mr. Lumsden says that the fact that the Commission was against him, the engineers against him, the opinions against him, made him waiver in his judgment, and he consulted Mr. Schreiber, who made a diagram which introduced into the classification a sub-head called "Assembled Rock," consisting of "Rock in masses of over one cubic yard (Assembled Rock) which in the judgment of the engineer can best be removed by blasting" (p. 390. See Exhibit No. 16).

There is nothing in this diagram said of cementing material, but Mr. Schreiber, who made it, and Mr. Lumsden say what they meant to say was that these masses of rock should be cemented together to qualify as solid rock excavation and Mr. Doucet so told his engineers. This diagram and the lawyers' opinions were sent broadcast among the engineers, the first by the Commission, and the latter by the contractors, and resulted in our judgment in the utter demoralization of the classification. Why stones, which were less than a yard in size, which are by clause 35 declared to be loose rock, can be turned into solid rock excavation under any condition, passes our understanding.

The appended statement shows that material, which this Commission unhesitatingly finds should have been classified as loose rock or common excavation, to the extent of 2,898,000 cubic yards was classified as solid rock excavation under the heading of "assembled rock." It is well to remember that Mr. O'Brien admitted that under no other classification had he ever been allowed "assembled rock" as solid rock excavation, and Mr. McArthur says (p. 518):

> Q. From information before us, you appear to have been paid for 408,220 cubic yards of solid rock in your progress estimates for material known as "assembled rock", which is composed of pieces of rock smaller than one cubic yard mixed in with sand and clay and hard pan. What have you to say why this material, not being solid rock, should not be classified as loose rock?—A. I cannot tell you.
>
> Q. You were to be paid for solid rock of a cubic yard and over in size, and you were paid for solid rock which was under a cubic yard?—A. Yes, assembled rock was something I never heard of except on this job.
>
> Q. And when you made your tender on this job you never heard of assembled rock?—A. No.
>
> Q. So that any advantage or disadvantage that might accrue from the adoption of assembled rock was a new feature to you?—A. Yes.

Mr. M. P. Davis in his evidence said:

Q. With regard to classification, did you ever know a solid rock specification in which was included rock fragments less than a yard paid for as solid rock in this manner?—A. No, sir.

By introducing the words "cemented together," the contractors were furnished with a new argument for wider classification, of which they quickly availed themselves. Stones, mixed with stiff clay or packed tightly in sand, were, in their view, cemented together, and seemingly because there was no other description of excavation to which to apply it, the engineers classified under assembled rock vast quantities of stoney material, loosened by blasting, which, without this interpretation they would have classified as loose rock.

From the evidence of the ex-Chief Engineer, Mr. Lumsden, it is clear that if he had received the support of the Commissioners, or if they had allowed him to make his own interpretation, as was his right and duty under the contract, he would have insisted upon the proper classification of the material, and the country would have been saved an improper expenditure of $1,835,051.20.

From the evidence, it will be noted that the solid rock classification, known as "assembled rock" was an innovation to all contractors. They received it because they argued and insisted upon it, and with the assistance of the Commissioners, lawyers and engineers, overcame the Chief Engineer.

The peg on which this assembled rock classification was hung, was the use of the word "masses" in the specification, which it was contended was not limited to masses of rock each of which was over a cubic yard, but included masses of material made up of any size of stones, cemented together by the interstitial material.

The evidence of Mr. Schreiber and of Mr. Lumsden, given before this Commission, and of Mr. Lumsden, given in the Lumsden Enquiry, and of the engineers, who were examined by this Commission, show that they all understood assembled rock to be limited to masses of stones cemented together, and, therefore, if any material which did not consist of stones cemented together by such interstitial material was classified under this head, the engineers gave to the contractors solid rock prices for material which was not even covered by this wide and improper interpretation.

This Commission, in its journey over the La Tuque District, was accompanied by several of the engineers of the Commission, and requested these engineers to point out to it the places where assembled rock was to be found. This Commission failed to find any material on the whole road, which could be classified under the heading of "assembled rock," and the engineers were unable to point out to them any such material. It invariably consisted of stones of various sizes mixed with or packed in clay or sand, none of which had any cementing properties.

On their return to Quebec they took the evidence of the Field Engineers, Ferguson and Porter, who accompanied them, when they testified to that fact (p. 276).

Mr. Collingwood Schreiber, who was examined by this Commission, stated that although he had travelled over the whole line, from Winnipeg to Quebec, he had seen little or no material which could be classified as "assembled rock" (p. 448).

This Commission, therefore, finds that even admitting the assembled rock definition to be correct, there is little or any of what could be allowed as such or that could reasonably be properly so classified, and that this definition was used to allow what under any interpretation of the specification should have been classified as loose rock or common excavation.

In order to determine the amount of money which has been given to the contractors as payment for the excavation of assembled rock at solid rock prices instead of the payment which they should have received had the material been

classified according to the specifications, as we find they should have been interpreted, it is necessary to attempt a reclassification of the total yardage of assembled rock paid for on the Transcontinental Railway.

The Commission endeavored to secure from the engineers records of the actual yardage of boulders of a yard or over contained in the yardage of assembled rock, but it was found that, though the records kept by the boulder measurers were in most instances incomplete, in the majority of cases they covered only a percentage of the work. This was partly due to the fact that boulder measurers were not employed regularly on all residencies, and partly because the boulder measurers did not consider it necessary to measure accurately the boulders, over a yard contained in the masses of assembled rock, in view of the fact that the entire mass was to be returned at the solid rock price.

We find that the question of whether a mass of material was to be paid for at solid rock prices or not depended upon the percentage of stones in the mass. If this percentage of stones was fifty per cent or over, the mass was classified as solid rock. If the stones aggregated less than fifty per cent., the mass was classified as loose and solid rock, the solid rock in this case being represented by the number of boulders or rock fragments each containing a cubic yard or over.

The size of the stones usually did not appear to have any bearing on the matter. They might be solid rock size, which is one cubic yard or over, they might be loose rock size, which is from one cubic foot to one cubic yard, or they might be common excavation size, which covers stones smaller than one cubic foot in volume. The usual requirement in order to return the material as solid rock was that there should be, in the judgment of the engineers, fifty per cent. of stoney material in the mass. Mr. Doucet, however, placed the minimum size at eight or nine inches (p. 359).

The matrix of sand or clay, of which the "assembled rock" was composed up to fifty per cent of the mass, has been given the benefit of the doubt and been taken as loose rock, though the large quantities of this clayey sand indicates that a certain proportion might well come under the heading of 'common excavation.'

In making this reclassification, the results of which are shown in the statement below, the Commission has classified forty per cent of the entire yardage of assembled rock as solid rock and sixty per cent as loose rock, and they feel in so doing they are allowing a far more liberal classification than would have existed had the term "assembled rock" not been invented.

This classification does not apply to District A. for which District Engineer Foss has supplied the information based on his judgment and knowledge of the conditions when the work was being carried out as per the following letter:

"St. John, N.B., Sept. 5th, 1912.

"Gordon Grant, Esq.,
Chief Engineer, 'N.T.R.'
Ottawa.

"Dear Sir:—

"Referring to your circular of August 31st, file 10328, with reference to Boulders included in Assembled Rock, no Boulder measurement was kept, and as regards the percentage of Boulders contained in the Assembled Rock, I am satisfied that on Contract 1, with my knowledge of the cuttings from which this return was made, 50 per cent of this rock would have filled the specifications for Boulders, namely, one cubic yard. The same, I am satisfied would hold true of the small amount returned on Contract 2. On all the other contracts, I think an average of 5 per cent would cover all the Boulders that would be measured by the yard and returned in Assembled Rock statement. This would amount to:

3534	on	Contract	1
305	"	"	2
1509	"	"	3
5175	"	"	4
5780	"	"	5
3110	"	"	6

"Yours very truly,
"C. O. FOSS,
"*District Engineer.*"

The payment of solid rock prices for masses of material which contained only five per cent of solid rock is an example of the latitude taken by the engineers with Lumsden's assembled rock circular to appease the contractors with the knowledge that the Commissioners would approve of it.

The statement then is briefly as follows: The first column shows the yardage of assembled rock returned on each of the districts. The second column shows the cost to the country for this excavation paid for at the contractors' prices for solid rock. The third column shows amounts which would have been paid for this excavation had the classification been based on the percentage classification which this Commission has adopted from the reports and evidence and which they feel is on the liberal side. The difference between the totals of the second and third columns, namely, $1,835,051.20, is the amount which the contractors have, in our opinion, been overpaid.

	Assembled rock returned to date. Yardage.	Cost.	Value at proposed re-classification.
District "A"	305,009	$ 448,645.54	$ 148,637.00
" "B"	2,163,212	3,267,351.75	2,015,805.44
" "C-D"	14,473	27,971.05	17,391.65
" "F"	416,142	705,625.63	432,709.48
	2,898,836	$4,449,594.77	$2,614,543.57

Difference in cost.....$1,835,051.20.

The above overpayments were received by the following contractors:

M. P. & J. T. Davis.....	$307,837.75
E. F. & G. E. Fauquier.....	4,991.00
Grand Trunk Pacific Railway Co.....	283,857.25
Willard Kitchen Co.	125,195.94
Lyons & White	50,063.20
J. D. McArthur	269,527.20
Macdonell & O'Brien	784,979.01
O'Brien, Fowler & McDougall	3,388.95
O'Brien, O'Gorman & McDougall	4,903.90

Classification of Loose Rock and other Material.

Paragraph 35.—Under these specifications, clay and other materials, of a certain degree of hardness are to be classified as loose rock. The test of this degree of hardness is that if in the judgment of the engineer, the clay or other material is so hard that it cannot be ploughed, with a ten inch grading plough behind a team of six good horses properly handled, and without the necessity of blasting, though blasting may be occasionally resorted to, it is to be classified as loose rock.

The engineers of the National Transcontinental Railway paid little attention to that portion of clause 35, which defined this test. A number of them have stated to this Commission that they did not consider it a test at all, but that they considered if the material for any reason could not be practically ploughed

it came under the heading of loose rock. This is obviously an erroneous reading of the clause, for under that interpretation a bank of sand, so located that it was impossible to get horses to it, or on account of being on a very steep slope impossible to plough it, would come under the heading of "loose rock" as far as the test of hardness was concerned.

The cost of excavating and removing of the material to the contractor, was the feature which governed the loose rock classification. This is a dangerous basis to work on, and has resulted in this case in improper returns, and increased profits to the contractors over and above what they are justifiably entitled to.

On contracts Nos. 13, 14, 15 and 16, east and west of Cochrane, the country through which the line passes is composed almost entirely of clay of varying degrees of hardness and it was to cover just such material as this that the test for hardness was inserted, so that the engineers would have a definite rule to work by and so the contractors, when tendering, might regulate their prices to cover the material as described.

Mr. A. T. Tomlinson, Inspecting Engineer for the Grand Trunk Pacific Railway over this territory, said that all classification was based on cost and that he ignored the specifications (p. 423).

Mr. H. M. Balkam, District Engineer of District CD, gave the opinion that a team of horses could pull a plough through most of the clay in his district (p. 317).

The other engineers examined by the Commission, confirmed its opinion, already formed by inspection of the various cuttings, that an enormous quantity of clay had improperly been returned as loose rock, under these specifications.

The reclassification of the material excavated on Contracts 14, 15 and 16, based upon the specifications, shows that the contractors have been overpaid for this item to an extent of over $750,000 (p. 379).

The overpayments for this ploughable clay was distributed among the contractors as follows:—

M. P. & J. T. Davis	$155,000.00
E. F. & G. E. Fauquier	223,500.00
Grand Trunk Pacific Railway	373,000.00

Overbreak.

The term "Overbreak" is an engineers' name (not used in the specification), applied to such solid rock as the contractors remove from outside of the prescribed slopes of cuts. The specifications prescribe a width of 18 feet in the bottom of the cuts, the sides of which were to be on a slope of 1¼ feet to 1 foot. The engineers marked out the ground by stakes, showing the limits of the proposed cutting, so that the contractors knew exactly what material they were to take out, and any material removed outside of these lines is called "Overbreak", i.e., unauthorized excavation in rock cuts.

Paragraph 37 of the General Specifications covers overbreak:

> "37. Material in slips, slides and subsidencies extending beyond slopes "in cuttings will not be paid for unless, in the opinion of the engineers, such "occurrences were beyond the control of the contractor, and not prevent- "able by use of due care and diligence." See Exhibit No. 10.

The terms "slips" and "slides" mean overbreak in rock cuttings, and, according to the above paragraph, any such which is avoidable must not be paid for.

"Avoidable overbreak" is usually caused by the use of excessive quantities of explosives.

"Unavoidable overbreak" means rock, outside the prescribed section, which because of natural seams or cracks existing prior to the blasting, slips, or slides into

the cutting, as soon as the rock in the cutting, which supported or kept it in place, is removed, and thus occurring through no fault of the contractor, he is properly paid for removing it from his cutting.

Under the specifications the engineer is to classify this material as he finds it after it falls into the cutting, that is, he is to pay solid rock price for fragments larger than a cubic yard and loose rock, for those less than a cubic yard.

In District B, east and west of Quebec, out of 3,206,571 cubic yards, 837,230 yards were overbreak, an amount of overbreak equal to 35.3 per cent of the rock excavation inside the slopes.

In District F, from Peninsula Crossing to Winnipeg, out of 6,352,940 yards, 1,688,244 were overbreak, or an amount of overbreak equal to 36 per cent of the rock excavation inside the slopes.

In many of the individual cuttings in both these districts, the overbreak ran up to 50 per cent. It is considered that an allowance of overbreak equal to 20 per cent of the amount of rock excavation inside the section is a liberal allowance to the contractor as "unavoidable overbreak".

The engineers allowed all overbreak to the contractors and certified that they should be paid solid rock prices for it, ignoring entirely the provisions of paragraph 37 and of paragraph 38, which provides "the classification of material from slides shall be made by the engineer, and will be in accordance with its condition at the time of the slide, regardless of prior conditions".

It will be noted that the contractor is not to be paid for any material which he takes out of the cut unless it is something which either unavoidably slid or slipped into the cutting. Here we gave a glaring example of reckless disregard of duty.

Under paragraph 24 of the agreement between the Grand Trunk Pacific and His Majesty the King, being Schedule to 3 Edward VII, Chapter 21, disputes between the Government and the company are to be referred to arbitration, and the Grand Trunk having protested against these allowances for overbreak, three arbitrators were agreed upon to endeavor to settle the amount of overbreak which should be allowed. The arbitrators went over Districts B. and F. and revised the estimates. They found that most of this overbreak had been used to make embankments, that is to fill up depressions, which it had been intended to have crossed by standard wooden trestles. They allowed solid rock prices for that part which they considered unavoidable, and for that part which they considered avoidable, they allowed for each yard of solid rock the price of a yard and a half of train hauled earth, and for whatever amount of unavoidable overbreak they estimated had been wasted, that is not used in the line, they allowed nothing.

The result of the arbitrators' findings and the classification made by the engineers subsequent to these findings, is shown in a statement appended hereto. The net result of these reclassifications was the reduction of the contractors' estimates by $561,311.84, which amount they would have otherwise received. (See exhibit No. 18.)

If the Commission had adhered to its original intention to use standard trestles and the contractors had not been encouraged to this reckless making of overbreak, by knowing that they could use this costly material for fills and receive solid rock prices for it, in all probability they would have been reasonably careful and this unprecedented condition of affairs would not have arisen.

This Commission on its inspection compared the original classification and the arbitrators award with the cuttings on the ground, and is of the opinion that the arbitrators instead of classifying strictly in accordance with the specification made a compromise between the award made and that which should have been made, and in our opinion the arbitrators' award is more liberal to the contractors than it would have been had the arbitrators made the original classification.

The item of train filling in for rock classification is not included in the contract and general specification. It was the result of trying to find some legitimate

way to pay for avoidable overbreak when the material had been used in the fills adjoining the rock cuts, and is justified on the ground that it relieved the railway from making the fill of some other material and the contractors should, therefore, receive an amount equal to what it would cost to make these fills from train fill or borrow. (See Train Fill.)

It is clear that when the contractors are paid a profitable price for the removal of rock that the larger the quantity to be removed from a given cutting the larger will be their profits.

The time to have prevented this large amount of overbreak was when the engineers made their early estimates. They should have made it apparent to the contractors that they would not be paid for this excess material. Instead of doing so, however, they allowed all of the overbreak and classified it as solid rock. This gave the engineers a larger amount of material for fills over depressions than they expected, and had the further effect of filling many of these depressions with solid rock which would otherwise have been filled with cheaper material, or would have been crossed by means of wooden trestles, i.e., fills were made by unauthorized excavation by the contractors on their own responsibility, and because the material was so used, the engineers and the arbitrators passed the estimates for it the same as though it were legitimate excavation. When the contractors found that they were to be paid for all material excavated, whether inside or outside of the section, there was no incentive for them to use care and diligence as called for in the specifications to prevent these slips and slides, but there was a premium put upon this wasteful method which the contractors readily seized because it gave them larger profits, equal in principal to the amounts shown in the statement above referred to.

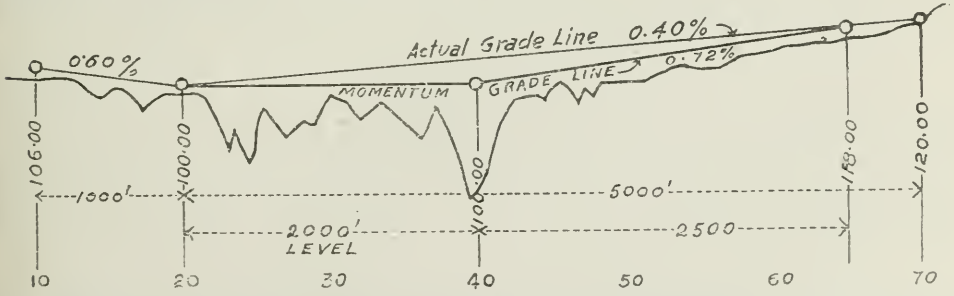
For evidence in connection with "Overbreak", see pp. 370, 394, 504, etc., etc.

MOMENTUM, VIRTUAL OR VELOCITY GRADES.

Railways cannot always be built on the level, and rises in the line are called "grades", of which there are two classes; first, "Actual grades", and a second class of grade called indifferently "Momentum", "Virtual" or "Velocity" grades. Not to introduce momentum grades in a line of this standard is to manifest careless ignorance of modern railway construction.

An "Actual grade" is where a line passes over a given distance from a lower to a higher point on the same slope for the entire distance.

A "Momentum", "Virtual" or "Velocity" grade can be more readily understood by an examination of the following diagram:



The above drawing shows an actual grade line over a distance of 3,500 feet and shows the construction of a momentum grade line on the same location. For a momentum grade the line is so constructed that a freight train approaching the momentum grade passes for 1,000 feet over a 0.6 per cent down grade, and so gets a "run at the hill." The train moving at ten miles an hour when it enters on the down grad increases its speed by momentum so much that when it arrives at the 2,000 feet level stretch it is moving

at eighteen miles per hour, and when it arrives at the foot of the "momentum" grade it is moving at twenty miles per hour, but when it arrives at the top of the "momentum grade" it is back to ten miles per hour. It will be seen therefore that the momentum which the train acquires in passing from the top of the 0.6% grade to the bottom of the "momentum" grade has increased its speed by ten miles, and this momentum helps it over the 0.72 grade without making any greater pull on the engine than required to take it over the actual 0.4 grade which reaches the level with the 0.72 grade a virtual 0.4 grade, all of which is shown on the diagram.

"Momentum" grades are introduced to save money in construction by lessening the fill or cut as the case may be. In this case it is a fill. If the "actual grade" is taken the fill in this case is from the ground line shown on the diagram up to the "actual grade" line. If the "momentum grade" line is taken the expense of filling between that line and the "actual grade" line is saved. In this case the saving is about 40,000 cubic yards.

The use of "momentum grades" was suggested to Chief Engineer Lumsden by Assistant Chief Engineer MacPherson, after he had taken the matter up with Mr. Woods of the Grand Trunk Pacific Railway and the Principal District Engineers of the National Transcontinental Railway.

Mr. Woods, in his reply of August 14th, 1905, to Mr. MacPherson, discouraged their use in the following language. (See Exhibit No. 19.)

> "I beg to say that we have not considered momentum grades in any way on our located lines, and I question the utility of doing so on grades as low as we are using."

Chief Engineer Lumsden's ruling of November 21st, 1905, that "We must adhere to actual grades so far as our construction is concerned, and all District Engineers should be so instructed. Should any exceptional cases arise, they should be submitted to this office, but you must bear in mind that they must be approved by the Grand Trunk Pacific Railway Company before they can be adopted", was the positive decision against their use, as the Grand Trunk Pacific Railway, through Mr. Woods, had already expressed themselves as being adverse to their introduction.

The evidence establishes the fact that momentum grades are as efficient as actual grades, for over both grades trains of the same weight, carrying the same tonnage, can be transported by the same locomotive at the same cost, and with the same degree of safety and comfort, and the evidence also establishes that had momentum grades been used in the location and construction of this railway, the cost of this construction might have been reduced by millions of dollars.

The evidence also is that it is in the location of the road and the adoption of the various lines run, based upon the best procurable grades, that the largest saving can be made from the introduction of momentum grades, and that any reduction in cost which might be made possible by introducing momentum grades on the profile of a located line would be insignificant in comparison with the saving which might have been effected had the locating engineers been permitted to practise this economy.

Mr. W. F. Tye, consulting engineer, formerly Chief Engineer of the C.P.R., in his evidence states that this saving on a railway like the Transcontinental would amount to millions of dollars. Other engineers, whom this Commission examined, estimated the probable saving as being from seven to twenty per cent of the cost of the grading.

As to the use of momentum grades, Mr. Tye says (p. 470):—

> "The use of momentum grades will not in any way degrade the standard of the road. They would not reduce the haulage capacity of the loco-

motives by one ounce, would not increase the running time of passenger or freight trains by one minute, and would not increase the operating expenses by one dollar—on the contrary, they would, by decreasing the cost of construction, reduce the fixed charges and so improve the commercial effectiveness of the road.

"If the result to be arrived at by the construction of the Transcontinental was to provide a means of handling traffic between the east and the west and vice versa at lowest cost, the use of momentum grades would certainly be a means to this end, and would be an improvement in the standard of efficiency of the road. They would certainly reduce the total cost of handling and so tend to permit of lower freight rates."

The following engineers, who, excepting Mr. Tye, have been, many of them, for years employed in their professional capacity in the construction of the railway, testified strongly in favor of the use of momentum grades, some of them had recommended them and all were of opinion that they should have been and could have been used without in any way lowering the standard or impairing the usefulness of the road; W. F. Tye, Consulting Engineer, and late Chief Engineer of the Canadian Pacific Railway; Gordon Grant, Chief Engineer of the National Transcontinental Railway; G. L. Mattice, Assistant District Engineer, District C. D.; H. M. Balkam, District Engineer of District C.D.; R. R. Holland, Division Engineer, District C.D.; A. N. Molesworth, late District Engineer, District C.D.; C. O. Foss, District Engineer, District A.; J. W. Porter, Assistant District Engineer, District B.; Duncan MacPherson, Assistant to Chairman, Transcontinental Railway; A. E. Doucet, District Engineer, District B.

Mr. Lumsden had no experience with momentum grades, as their use had only become imperative since the adoption by railways of low rates of gradient.

Had the Commission included among its members gentlemen who had had experience in modern railway construction and operation, we have no doubt but that the Commission would not have forbidden but, on the contrary, would have encouraged, the use of momentum grades, and we entirely agree with Mr. Tye when he says (p. 468):—

"If momentum will be used by the operating officials in any event (and it is undoubtedly used on practically every road in the continent) it seems silly not to apply the theory in a scientific manner on construction and take advantage of the undoubtedly large saving in construction expenses."

The cost which covers the excavation of the cuttings and the formation of embankments, amounted to approximately $62,000,000 by December 31st, 1912, and we conclude that at least ten per cent of the sum, namely, $6,200,000 was lost to the country by reason of the neglect to use momentum grades.

ALIGNMENT.

The instructions to engineers limited the curvature to six degrees—and also limited the minimum length of tangent to 300 feet. (See Exhibit No. 1.)

These hard and fast rules applied in the location of a railway 1800 miles in length had the effect of increasing to a very great extent the cost of construction.

We find that in expensive locations on railways of this character, curves up to ten degrees without tangents between spirals is good practice.

On District B in the 200 miles west of the Quebec Bridge, an additional expenditure of about $602,000.00 was undertaken in keeping within the limits prescribed by these rules. This mileage is about one-quarter of the rough country through which the railway was built, and we estimate that on the entire railway at least $2,400,000.00 has been expended in maintaining this light curvature alignment, which Mr. W. F. Tye, C.E., says is of "absolutely no value whatever". We quote here from evidence given by Mr. W. F. Tye:

Q. Would you have recommended a modification in this original instruction concerning a maximum degree of curvature?—A. The rule is a reasonable one to be included in the general instructions, but it should have been modified by a circular to the effect that where the use of curves sharper than six degrees would result in a large saving, surveys should be made and detailed estimates submitted showing the amount of such saving. No curves sharper than six degrees to be used without the express sanction of the Chief Engineer in each case.

Q. Would any large saving have been effected had this latitude been given in the construction of the railway?—A. There cannot be any doubt that in rough crooked country this rule rigidly adhered to especially in connection with the rule making the minimum length of tangent between the ends of easement curves 300 feet, must have resulted in tremendous expenditures that are of absolutely no value whatever.

And further in connection with these rules and particularly as regards the rule limiting the length of tangents, Mr. Tye says:

A. Such a rule is decidedly expensive on construction in a rough crooked country, such as is much of the country traversed by the Transcontinental. I have been trying mentally to apply it to some of the rough country through which I have located railways and I confess the thought appalls me. I am certain many many millions must have been spent in this way to produce results that are absolutely valueless or to speak more correctly are worse than valueless.

The District Engineers on Districts A, B, and F, have also pointed out to this Commission that the restrictions with respect to the curvature had the effect of increasing the cost of the railway in their respective territories, and as engineers would recommend greater latitude where rough country is encountered.

STANDARD WOODEN BRIDGES, EMBANKMENTS, STEEL AND CONCRETE BRIDGES.

In the construction of a railway, depressions in the surface of the ground which are lower than the intended grade line of the railway are either crossed by bridges of some kind or fillings called "embankments" of earth, rock or sand.

Bridges are either wooden trestles or steel and concrete structures of various kinds. There are, of course, many places in a long railway where it is not necessary to construct bridges across the depressions, as the object of the permanent bridge is to provide an opening for the passage of water or roads under the railway, and in these places the depressions are crossed by "embankments", sometimes many thousand feet in length.

If there are any adjacent high places through which the road is cut, the material taken from these excavations is used so far as it will go to form these embankments. Where there is not sufficient material obtainable from the excavations on either side of the depression, and material to form the embankments has to be brought from a pit or elsewhere, it is called "borrowed material" and if it is brought from such a distance as to make it necessary to carry it to the place by train, it is called "train hauled filling."

Where the material hauled by train is "common excavation", that is earth and sand, it is called "train hauled filling" simply; where the material so hauled is loose rock or solid rock, it is called "classified train haul".

The contractor agreeing to take out excavation must necessarily carry it a certain distance and on this railway, where he carried it for 500 feet or less, the carriage was included in the price per yard for excavating, and he was paid where he transports it by men or teams one cent per cubic yard for haul for each additional 100 feet or less, which he carried it. The first 500 feet is called the "free haul".

Where deep depressions are to be filled with material hauled by train from some distant source, "temporary trestles" of rough material are first thrown across them, just strong enough to carry loaded trains, which are then run on to the trestle and the earth unloaded from the train until the depression is filled, and the trestle is left buried in the embankment.

In the original construction of all modern railroads, standard wooden trestles have, on account of the present and ultimate enormous saving effected by their use, been invariably installed instead of train hauled embankments, or steel or concrete bridges, it being well recognized that after the railway is completed train hauled embankments to replace these trestles can be made at less than half the cost which would have been incurred by making them during construction, and that generally steel structures are not only unnecessary during the first few years of the railway's operation, but that after construction is completed and the railway is equipped and in operation, they can be more cheaply hauled to the site and more economically installed.

Further where local conditions are unknown many mistakes are bound to be made respecting the size of openings and reliability of foundations for heavy structures, and sinkholes, slides and washouts develop which ignorance of local conditions made it impossible for the engineers to anticipate. Where trestles are used engineers have time to become familiar with the country. The railway itself drains the ground before loading the line with heavy structures. Already on this line where the structures are put in they have had to be renewed more than once by reason of sinkholes, washouts and other misfortunes which would have been avoidable with the knowledge gained by experience.

The Commission was well aware before it decided to make embankments with "train hauled filling" that the cost per cubic yard would be more than double during the construction that what that cost would be if made after the railroad was completed, and we find that it was originally intended to construct wooden trestles instead of permanent concrete and steel structures and instead of embankments over depressions in the roadbed that could not have been filled with material from the adjoining cuttings or with borrow within short haul.

The Minister of Finance, in discussing in the House of Commons the policy of construction to be followed on the Transcontinental Railway says: (Hansard, Aug. 12th, 1903, page 8574.)

> "Now we know that in the construction of a road, in the anxiety to get a railroad built some things are done which may be regarded almost of a temporary character. In one place, you put in a trestle, which five or six years later you will fill up and make a permanent road. In another place, you put in a small wooden bridge; in time, when it commences to weaken, you put in a steel structure, and so on. The road is not finished when its nominal completion takes place but it may be finished as time progresses."

And on the same page:

> "We will give them a completed road as far as any new road can be made so, but as years roll on, if the Government be in the same position as the landlord to whom I referred, desired to make embankments on the road, if they desired, having regard to the permanence of the road to take out a wooden bridge and put in a steel structure, if they desired to fill up a trestle or do one of the many things which hon. gentlemen opposite, who are familiar with railways, will understand better than I do, then the Government will have the right to do that in the way of betterment."

The first grading contracts (Nos. 9 and 10, Quebec Bridge and westerly 150 miles, Hogan & Macdonell, and No. 21, Peninsula Crossing to Winnipeg, J. D. McArthur) contained no item in the schedule of prices for train hauled filling of any description, nor was any yardage of this material included in the Chief Engineer's estimate of quantities on these contracts. (See Exhibit No. 20.)

Before these contracts were let Mr. Lumsden advised the Commission that it should be made clear to the contractors that they would not be paid anything above the prices fixed for common excavation for any kind of train hauled filling or temporary trestles. Mr. Lumsden's correspondence with the Commission and the Grand Trunk Pacific Railway put it beyond controversy that it was originally intended to use standard trestles instead of train hauled filling. Mr. Schreiber, who made the original estimate, intended to use wooden trestles; Mr. Fielding, in his explanations to Parliament, contemplated them; the Grand Trunk Pacific Railway Company not only approved of wooden trestles which it used throughout its own road west of Winnipeg and on the Fort William Branch, but by a formal resolution of its Board agreed that when they were worn out it would replace them by embankments at a cost not to exceed 25 cents per cubic yard for train hauled filling, which was less than one-half the price paid by the Commission. (See Exhibit No. 21.)

The correspondence and the evidence, therefore, indubitably show what was the intention as regards this feature of construction, and we have endeavored to find a reason why this so sensible and economical principle was abandoned. There is no official record of exactly when the Commission abandoned standard wooden trestles; it seems to have slowly drifted from or to have forgotten its original intention, as appears by what follows:

In a letter dated 9th June, 1906, from Mr. A. E. Hodgins, District Engineer, to the Chief Engineer, the first signs of the coming change appear:

> "Mr. McArthur has raised the question who will pay for temporary trestles if train hauled filling is ordered in heavy fills. He is very anxious to do train filling west of the C.P.R. crossing in place of permanent trestles. He has not put in any price for temporary trestles and claims that his price per cubic yard for train filling does not include anything but the loading and offloading material for banks from flat cars."

As before stated, Mr. McArthur's contract did not provide for train hauled filling, and he is evidently referring to Item 74 in the Schedule (Train Hauled Surfacing), which is the gravel used for finishing the grade around the ties, and for which he was paid 30 cts. per cubic yard. Mr. Lumsden, in his reply, points out that:

> "It was not the intention that the present contractor should be called upon to make very heavy fills, the material for which would have to be hauled by train, but that he should put in standard trestles in such places. Of course, if the contractor prefers to make up a fill by train-hauled filling, rather than put in the standard trestle, he can do so with your approval, and in such cases he must provide the necessary temporary trestle at his own cost (except under clause 17, headed temporary bridges or haulway)."
> Letter dated June 12th, 1906.

On November 5th, 1906, Mr. A. E. Doucet, District Engineer at Quebec, wrote that Mr. M. P. Davis was asking him for bills for timber for wooden trestles at eight locations mentioned in the letter, and points out that to give this information opens up the question of temporary trestles and train hauled material, concerning which no decision had as yet been come to, and argues that, as train hauled filling had not been provided for in the contract, they were at the contractors' mercy, and should have to make the best of a bad bargain.

Some verbal discussion appears to have then taken place between them, because on November 12, Mr. Doucet enclosed a letter from Mr. Davis, asking Mr. Lums-

den to make a price for train hauled filling, and in his reply of December 4, the Chief Engineer says that in his opinion if the present contractors were allowed an addition to their ordinary earthwork price (21 cents per cubic yard) of 15 cents per yard on all train hauled material to make embankments (other than ballast), with an addition of one cent per yard per mile for haul over five miles, such an arrangement would be a fair and equitable one between the contractors and the Commissioners, for train hauled filling hauled by train for a distance over 2,000 feet.

Mr. Lumsden now appears to have lost sight of the fact that he had laid down a policy of constructing standard trestles where large fills were encountered. The contractors, apparently assuming that they were in the comfortable position spoken of by Mr. Doucet of having the Commission at their mercy, promptly refused this offer and claimed that they were entitled to be paid, unless a special price were made, common excavation price, plus one cent per 100 feet overhaul, and as some of this material had to be brought four or five miles, it put up the price to perhaps $2.50 per yard. Of course, this contention was entirely wrong, as the 100 feet overhaul clause only applied to material which was hauled by teams and men and not by train.

Mr. Lumsden, in his evidence, told this Commission that on the 14th of December preceding, at a meeting in Quebec, with Messrs. Davis Bros., Macdonell and O'Brien, the Chairman, Mr. Doucet, Messrs. Wood and Armstrong, the Grand Trunk Pacific supervising engineers, he eventually consented to a price of 55 cents per cubic yard, which in his opinion, "is a very good one" (p. 404).

With the approval of this price for train hauled filling, the contractors were furnished with an excellent money making substitute for wooden trestles. In the meantime, difficulties had arisen on Mr. J. D. McArthur's Contract, No. 21, in connection with the scarcity of material for constructing embankments, and the result of the correspondence between Mr. McArthur, the District Engineer and the Chief Engineer, was the submission of a price by Mr. McArthur of 52 cents per cubic yard for train hauled filling, including temporary trestles, which offer was approved by the Commissioners on May 27, 1907.

After these arrangements had been made with the early contractors, the specifications were revised by the insertion of clause 224X, which covers train hauled filling, so that in all the grading contracts, other than 9, 10 and 21, this item was tendered upon by the contractors and prices fixed before the contract was awarded, and we thenceforward hear no more of wooden trestles.

An estimate has been compiled (see Exhibit No. 22) showing the saving which might have been effected by the construction of wooden trestles instead of embankments and permanent openings at 150 locations between Moncton and Winnipeg. The costs of the embankments and permanent structures have been supplied by the district engineers of the Transcontinental Railway. Likewise the estimated cost of constructing wooden trestles at these locations has been figured by these engineers, the contract price for this work being used, except in two instances, where the price for lumber in trestles ran from $80 to $90 per thousand feet board measure. On these two contracts, the estimated cost of the trestles has been arrived at by using a price of $50 per thousand feet for lumber, which is considered a fair and reasonable price for this class of work, and is in excess of the contract price for lumber in trestles on some other contracts. The life of the wooden structures has been assumed to be only seven years, though as a fact it is really much longer, and consequently the amount we show to have been saved is considerably less than would have actually resulted.

In the columns covering the estimated cost of the fill and structure, if undertaken in 7 years the train filling has been figured at 25 cts. per cubic yard, which is the sum for which the Grand Trunk Pacific Railway Company offered to do the work in the event of the Commissioners deciding to construct wooden trestles.

The cost of the masonry structures has been reduced to 80 per cent of what they did cost to construct at the existing contract prices, for the reason that the prices at which this concrete work was sublet by the main contractors provided for them profits in excess of 20 per cent, and in seven years time when the Transcontinental Railway would be in operation and easily accessible at all points, this work could be undertaken and completed at the prices paid the subcontractors, thereby eliminating the heavy profit-taking which added so much to the cost of this work.

The Act, under which the Transcontinental Railway is being constructed, provides that the rate of interest to be paid on any loan to be raised for this work shall not exceed 3½ per cent per annum. The records show that Canadian Government 3½ per cent bonds have brought on the market from 90 per cent to 95 per cent of par value. This feature increases the interest charged to approximately 3.8 per cent, so that a 4 per cent charge has been used in this statement as being the nearest figure to the actual cost to the country in interest charges on the amounts expended on permanent structures and embankments.

By reference to Exhibit No. 22 it will be seen that at the end of seven years, had wooden trestles been constructed at these 150 locations, the saving would have been $6,967,284.00, and if the Government had then decided to put in steel and concrete bridges and embankments in place of these trestles the work could have been done for $3,534,701.00 less than it actually cost and after deducting from this the cost of the original wooden trestles there would have been an ultimate saving of $2,947,227.00. It is estimated that the completion of the road has been delayed several seasons by not installing wooden trestles, resulting in a loss of interest amounting to over $1,000,000.00.

A detailed statement has been compiled showing the additional expense incurred owing to slips, slides, subsidencies and washouts where heavy embankments were used to convey the railway over soft muskegs, silt and soft clay deposits. The total cost of repairing these embankments was $1,376,910.43. Many of the locations where the additional money has been expended are included in the "Wooden Trestle" statement above referred to, and the cost of the fills as shown is thereby increased, for had these treacherous places been crossed by means of trestle bridges supported on piles, the engineers would have had eight or ten years to study the conditions and provide drainage, and in many cases the drainage and clearing would have dried out and hardened the surface of the ground sufficiently to carry the embankments without the subsidencies, slips and slides which have occurred and which have caused this additional cost.

It may be argued that the fire risk in connection with the wooden trestles in a new country was sufficient to justify the enormous expenditure necessary on account of their omission. The answer to this is, that the fire risk could have been reduced on this railway in the same manner as on the Grand Trunk Pacific Railway and other Canadian lines by clearing the combustible material in the vicinity of the bridge for such a distance as to make communication from forest fires to the structure itself impossible, and from other causes by watchmen, water supply and fire resistant paint, as provided in the instructions of the Board of Railway Commissioners.

By reference to the contract with the Grand Trunk Pacific Railway, it will be found that trestle repairs and protection against fire and renewals on account of fire come within the cost of maintenance to be borne wholly by it, so that their maintenance does not figure in their ultimate cost to the Government.

It has been intimated to us that the Commission had no option under the statute creating it and authorizing the construction of this road. In other words they were in duty bound quite irrespective of cost to deliver to the Grand Trunk Pacific Railway Company a railway completed in every respect. There is no pro-

vision of the statutes which requires or authorizes the Commission to make any unreasonable or unnecessary expenditure in the construction of this road. They were given a free hand and could not have been criticized had they proceeded along lines followed by prudent railway companies constructing high class roads who recognize cost as an element to be respected, and they cannot point to any railway in Canada or to any similar undertaking in the United States as a justification for their enormous expenditure on embankments and permanent bridges. A completed railway means to any reasonable person one over which traffic may be safely and advantageously carried, and cannot mean one on which all conceivable capital expenditure has been made because in the wider meaning of the term railways are never completed.

In our investigation we do not find that the question of economy in the matter of construction of wooden bridges was ever seriously discussed between the Commission and its officers, and we do find that when it was understood by the engineers in the field that all fills should be completed at once they found it necessary to borrow large quantities of rock with which to complete these fills, as shown in the statements covering overbreak and rock borrow, this material costing the country four times what filling would have cost later had the policy of wooden trestles been adopted. (See exhibits 18 and 23.)

The construction of embankments opened wide the gate of recklessness in overbreak. If wooden trestles had been used where the material within the prescribed slope lines in cuttings was insufficient the contractors would have had no profitable way of disposing of the enormous quantities of rock which they unnecessarily took out over hundreds of miles of the line, and so would have been careful to remove the least possible.

Had wooden trestles been used undoubtedly a further saving would have been made in the cost of culverts and bridges, over water courses because their size had to be determined before the engineers had any reliable knowledge of the height to which the water from year to year might rise in the streams, so they in the interests of safety constructed the openings of a larger size than ten years of experience might have shown to be necessary.

While it is not possible to prophesy what might have been the saving under this head, it is certain that a few years experience and knowledge of the country would have shown that smaller and more economical structures would be used in many places.

Had the locating engineers been instructed that the use of wooden trestle bridges was contemplated, it would have influenced their location in such a manner as to reduce the amount of material excavated from the adjoining cuttings, that is, instead of endeavoring to make their cuts and fills balance, they would have located the line in the most economical manner.

As an example of the enormous profits realized by the contractors upon the item for train hauled filling it is pointed out that Contract No. 7, the main contractors M. P. & J. T. Davis sublet this work for 28 cents per cubic yard and received 40 cents per cubic yard from the Government. At these prices the quantities handled would give them a profit of over $225,000 on this item alone. Similarly on Contract No. 8, where they received 45 cents per cubic yard, and the returns here would indicate a profit of $432,000.

The total yardage of train hauled filling paid for on the Transcontinental Railway up to December 31st, 1912, was 25,958,130 cubic yards, which cost at the contractors' prices for this work $13,537,924.68.

This material has been used in the construction of embankments, where it was found impossible to procure sufficient material from the adjoining cuttings. The locations dealt with in the trestle statement account for about 13,000,000 yards

and the balance of this train hauled filling has been generally used in bringing shallow embankments up to the grade line and for widening embankments to the width called for by the specifications. We have been told that a great deal of unnecessary material went into the construction of this road.

In view of the fact that the train hauled filling was proving such a heavy expenditure the Commissioners should have taken steps to ensure that the grade line be kept as low as possible, sags introduced in heavy fills and embankments only widened to what was necessary to make them safe for traffic, and in doing this they would have been following Mr. Fielding's intentions as regards the construction of the road, and the practice of all responsible railway companies whose object is the economical construction of a high class efficient railway. Had the work been undertaken in this manner and finally completed at the Grand Trunk Pacific Railway Company's rate of twenty-five cents per cubic yard (at which rate they offered to fill wooden trestles) the country would have saved in contractors' profits alone the sum of $3,250,000.00.

BUILDINGS.

The following buildings erected on the Transcontinental Railway have been constructed according to the designs supplied by the Grand Trunk Pacific Railway Company (p. 415): Engine houses and machine shops, coaling plants, sand houses, trainmen's rest houses, store and oil houses, ice houses, freight sheds, way stations, divisional point stations, section houses, section tool houses, water tanks.

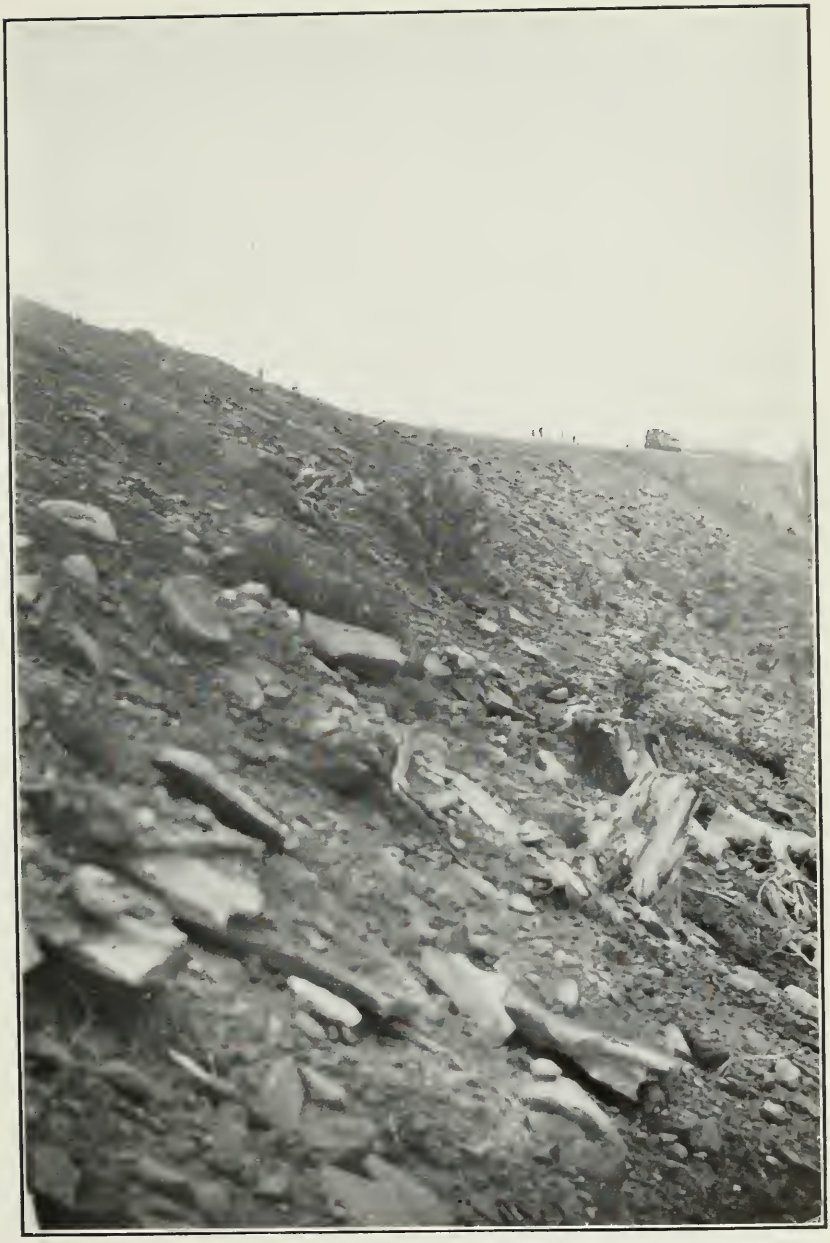
Of these buildings, the engine houses, section houses and water tanks were included in the general grading contracts, and separate contracts were let for the other structures.

Engine Houses.

There are sixteen divisional points on the Transcontinental Railway, between Moncton and Transcona, and including these two points. The following statement supplied by Mr. W. J. Press, Mechanical Engineer of the National Transcontinental Railway, shows the location and through mileage of each divisional point with the capacity of the engine house to be erected, together with the estimated cost:

District.	Through mileage.	Location.	Number of stalls.	Estimated cost (including heating but not boilers).
"A"	1.0	Moncton	12 stalls and machine shop.....	$100,000
	117.5	Napadogan	12 stalls and machine shop.....	110,000
	330.0	Edmundston	12 stalls and machine shop.....	100,000
"B"	355.4	Laurier	12 stalls without shop.....	90,000
	460.4	Quebec	12 stalls without shop.....	110,000
	586.9	Fitzpatrick	12 stalls	90,000
	705.8	Parent	12 stalls and machine shop.....	110,000
	808.8	Doucet	12 stalls	100,000
"C"	916.7	O'Brien	12 stalls	95,000
"D"	1028.8	Cochrane	12 stalls and machine shop.....	110,000
	1157.8	Hearst	12 stalls	100,000
"E"	1282.8	Grant	12 stalls and machine shop.....	120,000
	1413.2	Armstrong	12 stalls	95,000 (Including heating apparatus and boilers.)
"F"	1552.1	Graham	18 stalls and machine shop.....	$205,000
	1675.8	Reddit	12 stalls	95,000
	1800.0	Transcona	24 stalls	135,000
			Total estimated cost.....	$1,765,000

District B, Residency 14, Mileage 29.6. Assembled Rock. Page 68.



District A, Mileage **45.0.** Portion of Coal Creek Fill, Looking East. Page **96.**

In the standard forms of tender and contract covering the general contracts, the construction of engine houses is included as part of the work to be performed by the contractor. (See Exhibit 10.)

That is each grading includes the construction of the engine houses which may be located within its particular mileage.

The items, however, in the contract schedule, do not cover the various classes of work which it is necessary to pay for in the construction of an engine house, and those which are common to both classes of work are so defined in the general contract as to make them inapplicable to engine house construction. For instance, lumber in the general contract is allotted to trestles, culverts, cofferdams, and plank in highway crossings, and the various mixtures of concrete are specified for culverts, bridge abutments, and walls of buildings (1-4-8), which latter mixture is too poor to be considered in first class construction of any nature. There are only two items in the general contract which might have been used in the engine house schedule, and these are Item 60, concrete 1-3-5, including forms and Item 61, concrete 1-3-6, including forms. The use of these mixtures of concrete is not tied down to any particular form of construction. The Commissioners of the Transcontinental Railway took the view that as these buildings were included in the definition of the work to be performed by the general contractors, that it was essential for the work to be awarded accordingly. It became necessary, therefore, to arrange with the various contractors a schedule of prices covering the work to be undertaken, and in doing so the Commission occupied the unfortunate position of having awarded a contract for the work with no mention made of price or cost.

Some of the rates contained in these schedules submitted by the contracts and approved by the Commissioners are very high, viz; concrete at seventeen dollars per cubic yard, which Mr. Monsarrat considers should have been amply paid for at twelve dollars; brickwork, thirty-four dollars, forty and forty-four dollars per thousand; and lumber at seventy and seventy-three dollars, per thousand feet board measure.

In order to arrive at a conclusion as to whether these high prices were justified by the distance and isolation from mercantile centres of the locations where these buildings have been erected, the Commission secured the services of Mr. Thomas Tompkins, building contractor of Ottawa, to invstigate and report on the general contractors, together with a section of main line grading through particularly from the contractor's point of view.

Mr. Tompkins' report is as follows:

"Ottawa, November 25, 1912.

"The Transcontinental
Investigation Commission.
Ottawa, Ont.

"Dear Sir,—

"Acting on your instructions of September 20, I visited Transcona, Reddit, Graham and Cochrane, all divisional points on the National Transcontinental Railway, and made a practical study of engine house construction, costs and conditions at these locations. I now beg to hand you a report dealing with Graham engine house, boiler room and machine shop, as being a representative example of the manner in which the work is being done.

"This contract was let to Messrs. O'Brien, Fowler & McDougall Bros., general contractors, together with a section of main line grading through Graham.

"According to the final estimate for this work at the prices contained in the approved schedule, the entire structure, engine house, machine shop, fan room and boiler room, has cost $203,911.78.

"The construction of this building was sublet by the main contractors to Messrs. Farlinger and McDonald, sub-contractors, at prices which show a clear profit for the main contractors of $50,446.19, without doing any work. This profit was nearly all made in the concrete work for which the main contractors received $17.00 per cu. yd. and the subcontractors $10.00, the total cost of the concrete in this building being $90,191.

"Messrs. O'Brien, Fowler & McDougall supplied the cement necessary for this concrete work to the subcontractors at a rate of $3.00 per barrel. This cement cost the general contractors $1.10 per barrel at Fort William and with the addition of freight charges to Graham and an allowance for handling, the cost to Messrs. O'Brien, Fowler & McDougall at Graham was $1.75 per barrel, so that in addition to the profits already referred to, the main contractors had a profit on cement of $1.25 per barrel which amounted to $7,500.00 on the whole transaction, and this added to the profits referred to shows Messrs. O'Brien, Fowler & McDougall as being $57,946.19 to the good.

"In order to arrive at the profits which the subcontractors were enabled to make at their prices, I have prepared an estimate of the net cost of each item included in the construction of the building, the prices being based on cost at Fort William with full allowances for freight charges from there to Graham.

"I find that the net cost of this building was $96,202.59 which leaves the subcontractors a profit of $57,263.00, so that of the $203,911.78 which was the cost to the Transcontinental Railway, some $115,209.19 was contractors' profits.

"Attached herewith is the detailed estimate referred to which shows the amount paid to each of the contractors together with the net cost of the building."

"Yours truly,

"THOMAS TOMPKINS."

Mr. Tompkins' report, as regards the large profits made possible by the high prices paid by the Commissioners, is confirmed by the evidence given by Mr. A. McDougall (p. 550).

The Commission have endeavoured in various ways to determine what is a just and fair price for these buildings and what their cost would have been had the contract for their erection been open to ordinary competition.

A further report from Mr. Tompkins, based on the Canadian Pacific Railway Company's standard design which reads as follows:

"November 25th, 1912.

"The Transcontinental Railway
Investigating Commission,
Ottawa, Ont.

"Dear Sir:—

"I beg to acknowledge receipt of plans of the Canadian Pacific Railway Company's standard engine house.

"As requested, I have made a study of these plans and also of a C.P.R. engine house constructed to these plans, and beg to submit the following:—

"This design appears to be complete in every detail and I am well acquainted with it, having constructed similar houses for the Canadian Pacific Railway at various points on their system.

"I have prepared an estimate of the cost of constructing an engine house of this design at each of the divisional points on the Transcontinental Railway, of the same capacity as regards engine accommodation, and boiler and machine equipment as provided for in the program arranged by the Transcontinental Railway Commissioners.

"This cost is based on my personal knowledge and experience in doing this character of work and full allowance has been made for all freight charges, etc., incidental to the construction of this building at isolated points.

"To this cost has been added an item of 15 per cent as a fair and just profit to the contractor and which is generally in excess of what my experience tells me any contractor may expect on work which is obtained in open competition.

"The following would be the total cost of each of the points enumerated, based on the Canadian Pacific Railway Company's design:

Location.	Number of stalls.	Estimated cost.
Moncton	12 stall and machine shop	$ 62,000.00
Napadogan	12 stall and machine shop	62,000.00
Edmundston	12 stall and machine shop	62,000.00
Laurier	12 stall and machine shop	53,000.00
Quebec	12 stall and machine shop	62,000.00
Fitzpatrick	12 stall	53,000.00
Parent	12 stall and machine shop	62,000.00
O'Brien	12 stall	53,000.00
Doucet	12 stall	53,000.00
Cochrane	18 stall and machine shop	76,000.00
Hearst	12 stall	53,000.00
Grant	12 stall and machine shop	62,000.00
Armstrong	12 stall	53,000.00
Graham	12 stall and machine shop	76,000.00
Reddit	12 stall	53,000.00
Transcona	24 stall	96,000.00
		$991,000.00

"I find that these sums mentioned above are over 33 per cent in excess of what these buildings have cost at points on the Canadian Pacific Railway along the north shore of Lake Superior.

"Yours truly,
"THOMAS TOMPKINS."

indicates that by the inclusion of the items for engine houses in the general contracts, without insuring any protection to the country as regards the cost of the buildings, the Transcontinental Railway has become involved in a series of agreements which have increased the cost of these buildings, unnecessarily, about $759,000.00, the greater portion of which is contractors' profits.

Mr. J. M. R. Fairbairn, Assistant Chief Engineer of the Canadian Pacific Railway, has supplied the Commission with a statement showing the cost of these buildings on that railway, and from the figures submitted we find that for a twelve stall engine house with machine shop, which on the Transcontinental Railway costs from $96,000.00 to $110,000.00, the Canadian Pacific Railway have been paying from $49,000.00 to $50,000.00, so that we have no hesitation in accepting the estimated figures in Mr. Tompkins' report as being not only sufficient for the work, but liberal.

At O'Brien, the first divisional point east of Cochrane, the engine house has not yet been erected, and the Grand Trunk Pacific Railway, who hold the contract, No. 14, having released the Commissioners from this feature of their contract, tenders for the construction of a twelve stall engine house were advertised for on March 22, of last year. The lump sum tenders received and the amount at which the contract has been awarded, namely, $59,189.44, is about 30 per cent less than the estimated cost of this structure under the original schedule of prices for this work, and illustrates most forcibly the serious losses which result from the handling of contract work of this character by inexperienced officials.

Coaling Plants.

The following list shows the location, design and contract price of the coaling plants, either complete or in the course of erection:

Transcona	1,000 ton coaling trestle	$26,314.00
Reddit	1,000 ton coaling trestle	27,000.00
Graham	1,000 ton coaling trestle	27,000.00
Armstrong	200 ton mechanical plant with sand house	18,000.00
Grant	200 ton mechanical plant with sand house	17,959.00
Hearst	200 ton mechanical plant with sand house	17,927.00
Cochrane	1,000 ton coaling station with sand house	28,400.00
Edmundston	200 ton mechanical plant with sand house	18,347.00
Napadogan	200 ton mechanical plant with sand house	18,365.00
Moncton	200 ton mechanical plant with sand house	18,335.00
		$217,647.00

The other divisional points, Laurier, Quebec, Fitzpatrick, Parent and Doucet, when complete will be provided with coaling plants.

Trainmen's rest houses, or what are more familiarly known to the railway employees as bunk houses, have been contracted for at the following points at the various rates shown:

Napadogan	$ 9,400.00
Edmundston	12,990.00
Monk	8,220.00
St. Foye	7,550.00
Fitzpatrick	7,875.00
Parent	6,096.00
Cochrane	11,290.00
Hearst	11,300.00
Grant	11,040.00
Armstrong	11,040.00
Graham	11,290.00
Reddit	11,290.00
Transcona	11,290.00
	$130,671.00

The Grand Trunk Pacific design for this structure shows a two-storey building with a deep basement extending the entire length and width of the building.

Without going into the detail of design or construction of the other buildings coming under the head of "Terminal structures" the Commission are desirous of pointing out the serious increase in cost of these items on the Transcontinental, as compared with the Canadian Pacific Railway.

In order to arrive at a fair comparison, the Commission requested Mr. J. M. R. Fairbairn, Assistant Chief Engineer of the Canadian Pacific Railway, to supply them with details and cost of the terminal and other buildings erected at the divisional point at Muskoka on the main line of the Canadian Pacific Railway between Toronto and Winnipeg.

Muskoka was selected as representing similar conditions to those which exist on the Transcontinental Railway.

It is a modern railway divisional point on a low grade line (0.3 per cent). It is in an unsettled part of the country, and, in fact from every viewpoint, represents, as nearly as possible, the conditions to be met with at such a divisional point as Reddit on the Transcontinental Railway, between Winnipeg and Superior Junction.

In the following comparison, between the equipment, accommodation and cost at these points, the date and figures in connection with Muskoka are taken from the statement submitted by Mr. Fairbairn, and the information regarding Reddit from the records and contracts of the Transcontinental Railway.

Engine Houses.

Reddit:

This is a 12 stall brick building with boiler room, but no machine shop. Cost $95,000.00.

Muskoka:

Concrete building. 8 stalls with machine shop and boiler room, 47 ft. by 63 ft. Cost $36,000.00.

Store and Oil House.

Reddit:

Concrete and brick building 47 ft. 9 in. by 20 ft. 2 in. with extension oil vault. Cost $7,200.00.

Muskoka:

Concrete and frame building, 30 ft. by 30 ft. Cost $3,500.00.

Coaling Plant.

Reddit:

1,000 ton coaling trestle. Cost $27,000.00.

Muskoka:

Two pocket, 80 ton mechanical coaling plant, with sand house. Cost $8,000.00.

Station Buildings.

Reddit:

One Standard No. 1 Station. 24 ft. by 53 ft., containing on the ground floor, baggage room, 13 ft. 6 in. by 22 ft. 8 in.—ladies' waiting room, 9 ft. by 13 ft.—operation office, 10 ft. 6 in. by 12 ft.—living room, 9 ft. by 13 ft. —kitchen, 10 ft. 6 in. by 13 ft.—and general waiting room, 12 ft. 6 in. by 22 ft. 8 in.—and on the first floor, 2 bedrooms, 10 ft. 6 in. by 13 ft., and 2 bedrooms. 10 ft. 6 in. by 9 ft. 10 in. Cost $5,164.56.

One Station Building, Design D. 30 ft. by 102 ft., containing on the ground floor restaurant and kitchen 28 ft. 6 in. by 40 ft.—general waiting room, 20 ft. by 28 ft. 6 in.—operators' office, 11 ft. 6 in. by 20 ft.—trainmen's room, 14 ft. 6 in. by 16 ft.—ladies' waiting room, 26 ft. by 8 in.—lavatories, 15 ft. by 9 ft.—baggage room, 20 ft. by 28 ft. 6 in.

And on the first floor, office, 26 ft. by 11 ft—office, 10 ft. by 11 ft.—office, 25 ft. by 11 ft.—office, 10 ft. by 11 ft.—office, 23 ft. by 28 ft.—Office, 12 ft. by 11 ft.—Office, 14 ft. 6 in. by 11 ft.—Office, 21 ft. by 11 ft.—office, 11 ft. by 11 ft. —office, 28 ft. 6 in. by 11 ft.—lavatory, 8 ft. by 11 ft. Cost $22,112.00.

Muskoka:

Station Building. 24 ft. by 87 ft. 6 in., containing on the ground floor, waiting room, 18 ft. by 22 ft. 6 in.—operators' office, 10 ft. by 12 ft. 6 in.— trainmen's room, 10 ft. by 16 ft. 6 in.—living room, 10 ft. 3 in. by 12 ft.— kitchen, 13 ft. 6 in. by 12 ft. 0 in.—baggage, express and freight, 40 ft. by 22 ft., and on the first floor, 3 bedrooms. Cost $5,000.00.

Reddit:

Standard Freight Shed, 23 ft. by 60 ft. Cost $3,098.50.

Muskoka:

Freight room in station.

Ice Houses.

Reddit:

Standard ice house. Cost $3,400.00.

Muskoka:

None except a small building, 10 ft. by 16 ft. in connection with boarding house. Cost $200.00.

A summary of these figures shows the following conditions and costs:

	Reddit.	Muskoka.
Engine house	$95,000.00	$36,000.00
Store and oil house	7,200.00	3,500.00
Coaling plant	27,000.00	8,000.00
Stations	(2) 27,376.56	(1) 5,000.00
Freight sheds	3,098.50	nil
Ice house	3,400.00	200.00
	$163,075.06	$52,700.00

These figures in some measure indicate the costly equipment of the Transcontinental Railway in the matter of buildings as compared with the Canadian Pacific Railway.

We have already dealt with the engine houses and have shown that the excessive price paid for these buildings was the result of the method of awarding the contract. At the same time, we wish to point out that it would have been advisable to have reduced the number of stalls in each engine house to be constructed to as few as could properly provide shelter for the number of locomotives required to handle the train service on a new line of railway. The extensions of these engine houses, when required, could then have been carried out under a contract awarded in open competition with the resultant reduction in prices and cost and saved interest in the meantime.

The store and oil house erected is a one-storey building with a deep basement. No stores are carried on the ground floor, the entire basement being used for this purpose. The ground floor is devoted to a delivery counter to hand out the various stores to the employees, the oil pumps and office accommodation for about five men. This arrangement necessitates a separate concrete vault being constructed outside the building to receive the oil tanks, thereby adding largely to the cost of the structure.

In the operation of a store house of this character the fact that every article to be delivered, with the exception of the oil, has to be brought from the basement, is a serious handicap to rapid and economical handling of stores.

The office accommodation is greatly in excess of that provided in similar buildings on the Canadian Pacific Railway.

It will be noted that there are two station buildings at Reddit. The smaller building, which corresponds in design and cost very closely with the station at Muskoka, was erected first, but the design was not in accordance with the Grand Trunk Pacific Railway Company's idea of the requirements at a divisional point like Reddit. The second station building, constructed at a cost of over $22,000.00, is the standard plan supplied by the Grand Trunk Pacific Railway for divisional points on the Transcontinental Railway.

The office accommodation provided on the first floor is sufficient for the staff required to operate a railway district of five hundred miles or more.

The design is an office building and station combined and as such should have been erected only at district headquarters on the Transcontinental Railway, which would mean instead of constructing sixteen of these buildings at a cost of $22,000.00 or over apiece, they should only have been erected about every five hundred miles, or say four, for the entire mileage of the Transcontinental Railway.

At the other divisional points, a station building similar to the small station at Reddit would have sufficed. The saving in this one item alone at the prices given above would have been $204,000.00.

The construction of freight sheds at points like Reddit, situated in an absolutely uninhabited country, with a population restricted to the number of employees on the railway company's pay roll, was, in our opinion, a gross extravagance.

In both designs of station buildings, liberal accommodation is provided for baggage and freight, and we cannot imagine a condition which would justify the erection of a freight shed at these points until some local industry had sprung up or some indication of the necessity for such a building was given.

Owing to the character of the country at Reddit, the freight shed is so placed that only by expensive construction work will it be possible for teams to receive freight from this building. The approach to this building is through a marshy swamp, ten or twelve feet below the level of the freight delivering platform.

As regards the bunk houses which are being erected at an average cost of ten thousand dollars, Mr. Fairbairn advises the Commission that the standard bunk houses of the Canadian Pacific Railway, providing sleeping accommodation for twenty-two men, with dining and reading rooms, office, kitchen and lavatories, is erected by them at a cost of $3,300.00.

Bunk houses of this character would have been sufficient and desirable for those points on the Transcontinental Railway where such accommodation was required, instead of the rather elaborate two-storey structure which the Grand Trunk Pacific Railway Company designed for this service, and had the Canadian Pacific design been followed, the saving to the Commission would have amounted to sixty or seventy thousand dollars.

The foregoing chapter deals with the principal structures with which a railway company is concerned. We feel that in dealing with this subject a comparison with the Canadian Pacific Railway, a transcontinental line whose present equipment, structural or otherwise, is the result of many years' experience is entirely in order. The designs in use on the railway are based on the known requirements for each individual building, and, as such, represent what must be accepted as a standard in railway construction. The indiscriminate erection of buildings on the Transcontinental Railway without closely delving into the

necessity for this work, is due to a lack of intelligent supervision on the part of the Commissioners. The money needlessly expended on unsuitable and unnecessary structures, such as the divisional point stations, bunk houses and freight sheds, we place at $500,000.00, which, together with the $759,000.00 to be paid away in contractors' profits, on the engine houses, forms a total of $1,259,000.00 of the country's money, which might have been saved in the various manners dealt with in the foregoing chapter.

CAP ROUGE VIADUCT.

The Cap Rouge Viaduct which carries the Transcontinental Railway across the valley of that name, is located on the North Side of the River St. Lawrence, some 2.4 miles West of the Quebec Bridge.

This is a steel structure 3336 feet in length and the rail level of the viaduct is 172 feet above the low water level in the Cap Rouge River.

The total cost of the viaduct is as follows:

Substructure (concrete pedestals and abutments)	$454,133.51
Superstructure (steel work)	363,329.22
	$817,462.73

Of this amount $329,429.18 was paid the contractor for the construction of the three pedestals adjacent to the river.

The building of this viaduct was included in Contract No. 9, District "B," and the contract was originally let to Messrs. Hogan and Macdonell on the 15th May, 1906, to be completed on September 1, 1907. On the 15th May, 1906, the contract was assigned to Messrs. M. P. & J. T. Davis.

The concrete prices in this contract do not cover pneumatic caisson excavation but do cover all material useable in such work.

In October, 1906, it having been suggested that the three piers for Cap Rouge viaduct be put down by the pneumatic process, Messrs. M. P. & J. T. Davis by a memorandum dated October 27, 1906, offered to do the work of constructing each pier by the pneumatic process for $47,523.80, each pier to take 42 days to build. The memorandum further stated that they would build these piers on a pile foundation, using ordinary coffer dams for $34,547.20 each, but in this case they stated the piers would each take at least 90 days to build.

The prices were submitted to the engineers, who, for the additional cost, which would be about $40,000.00, favored the adoption of the pneumatic caisson plan. Afterwards Messrs. M. P. & J. T. Davis put in a new bid for this work, which is given below with corresponding prices, where they exist, for which they had contracted to do the work in Contract No. 9:

	New Prices.	Old Prices.
Excavation in pneumatic chamber	.70 in foundation.	.06½ per cub. ft.
Timber in caisson	$100.00	
Iron bolts, nuts and tie rods	.10	
Iron drift bolts	.06	.05 per lb.
Cast iron	.05	.04 per lb.
Spikes	.06	.05 per lb.
Caulking, oakum, as required	.10	
1-2-4 concrete in chamber	.75 1-2-4 concrete	.44 per cub. ft.
1-2 1/2-4 concrete in crib	.55	
1-2-4 concrete in pier	.60 1-2-4 concrete	.44 per cub. ft.

This put the work up to $200,000 more than it was expected to cost, and was objected to by the engineers, but the Chairman of the Commission insisted upon the new prices being accepted and the work being done by the pneumatic caisson process.

Now, why the contractor was given higher prices for the material used in the caissons has not been explained to us, nor do we know of any reason why it should have been given.

These piers had to be sunk about 40 feet, and, in our opinion, the work could have been done as expeditiously by the open caisson method as by the pneumatic caisson, and we can see no reason why the pneumatic caisson was adopted except the usual one of increasing the expense.

Mr. E. F. Powers who has had a great deal of experience in just such work as this on the Atlantic Coast was examined. In his opinion work such as was done here can be performed quite as expeditiously and for less than half the cost by the open caisson as by the pneumatic caisson method (p. 549).

Mr. C. N. Monsarrat, who is an engineer of eminence, and who has control of the building of the Quebec Bridge, says in a report made to the Commission:

> "Having made a close examination of the site and of local conditions, and also of the results of boring tests, as shown on Drawing B-1-32, dated November 10, 1906, I would say that I find no conditions which, in my opinion, would warrant the use of pneumatic caissons for the river piers of this bridge."

Mr. C. N. Monsarrat further at the request of the Commission prepared an alternative design for the construction of these bridge piers, the work to be carried out by the open caisson method, and his estimate of the cost of this work, based on the prices contained in Contract No. 9, shows that at least $250,000.00 has been unwarrantably expended on this structure.

On December 6th, Mr. M. J. Butler, then having before him the offer from the contractor to do the work by pneumatic caisson process for $47,523.80 for each pier, considered that the price was reasonable and decided to accept it. Afterwards when the contractor changed his price to increase the cost by $136,000.00, the engineers abandoned the idea of using pneumatic caissons and Mr. R. F. Uniacke, the Bridge Engineer of the Commission, prepared and recommended design "C" which was for the open caisson work. Mr. Uniacke in his report to this Commission on this subject says, in reference to the design:

> "While we were discussing this we were summoned to the Chairman's office, bringing down the plans to lay before him. Mr. Davis was already with the Chairman. The Chairman refused to consider such a change decided upon by Mr. Butler, impressing on me the fact that time was the most important consideration and the object was to have the Cap Rouge trestle ready by the end of 1907 so as to be able to transport the heaviest structure sections of the Quebec Bridge from Belair station to Cap Rouge for the Quebec Bridge, and instructed that the caisson method be followed."

Now then, it will be noticed that the contractor stated that the piers could be put down in one month by the pneumatic caisson and in 42 days by the open caisson method, and in 90 days for the other, so that the only possible gain that the Commission would make by adopting the more expensive method on the facts which were before them, was the saving of about 50 days' time, because there is no reason why the three piers could not be built concurrently. To make this 50 day saving in time $250,000.00 were spent. The benefits to accrue from this saving in time were lost owing to the fall of the Quebec Bridge.

Mr. Davis in his evidence gives a different story as to how the plans were finally decided upon.

CHAUDIERE CUT.

The present line of the Transcontinental Railway, as constructed, from the Quebec Bridge Company's line on the South side of the St. Lawrence River to St. John Chrysostome, where connection is made with the Intercolonial Railway, is a very expensive bit of railway construction. The main feature being what is known as the Chaudiere Cut,—a cutting over one mile and a quarter in length. 40 feet deep in places, and from which some 300,000 cubic yards of material have been removed.

The adoption and final approval of this location was not accomplished without some dissension on the part of several of the Commissioners' Engineers and on the part of the Grand Trunk Pacific Railway. The following is the sequence of events which led to the final decision on this important matter.

On May 13, 1907, Mr. MacPherson wrote to District Engineer Doucet, stating that Mr. Grant had suggested a change in alignment and grade at this point, and sees no objection to the introduction of a velocity grade. In July of the same year, Mr. Woods, Assistant Chief Engineer of the Grand Trunk Pacific, also wrote to Mr. Lumsden, stating that Mr. Armstrong (Grand Trunk Pacific District Engineer), advocated increasing the gradient, which would reduce the cost of the work to one-third of what was contemplated, and again in July, in a letter to Mr. Lumsden, pointed out that the saving to be effected by the adoption of Armstrong's suggestion would be about $250,000.00, that taking into consideration the 1 per cent grades on the Quebec Bridge crossing the St. Lawrence River, it would be needless to sacrifice the amount named to obtain an 0.4 per cent grade eastbound on the present location, and that the adherence to this latter grade would make a very bad showing for all concerned.

On August 1, 1907, District Engineer Doucet wrote to Mr. Lumsden, advocating the 0.4 per cent line as located, and his estimate of August 5, shows a saving of only $10,306.00 to be made by the adoption of Armstrong's line. The cost of Armstrong's line being increased by the addition of one item of $128,918, for "cost of portion of Quebec Bridge Company's line used," and another item for $120,503 being charges for pusher engine.

Mr. MacPherson wrote Mr. Lumsden on August 7th, criticizing Mr. Doucet's estimate as regards these two items and still advocating a revision in gradient and alignment.

On August 8, Mr. Lumsden made his report to the Commissioners on this matter, and having dealt with the costs of the two lines in question remarks: "I do not care to recommend it (the 0.6 per cent grade line) especially as you some time ago determined not to ask for approval of any more so called pusher grades, other than the two already approved near the Tobique and Lake Pohenagamook as on a former occasion at La Tuque, where a much greater saving could have been effected, the management of the Grand Trunk Pacific Railway themselves objected to it."

On August 8, Mr. Ryan, the Secretary of the Commission, advised Mr. Lumsden that his report had been approved, and on the same date Mr. Lumsden wrote Mr. Woods advising him of the stand he had taken in the matter.

Mr. Woods replied to Mr. Lumsden on August 14th, protesting against his decision in the matter and arraying strong arguments in favor of the cheaper line.

The approval of the Commission having been obtained, the construction of the 0.4 per cent grade line was proceeded with, with the result that this portion of the line, some 3.36 miles in length, cost for grading alone $484,103.33, or over $144,000 per mile.

Chief Engineer Grant's report on this matter, dated October 21, 1912, is as follows:

"F. P. Gutelius, Esq.,
Investigating Commissioner.

"Dear Sir:—

"Answering yours of the 3rd instant with which you hand me plans and profiles of several lines from Quebec Bridge East to St. John Chrysostome Yard, together with correspondence on the subject and asking me to make a study of the plan and profiles and let you have a report on the economies that might have been effected, had the line shown red on the plan been constructed, and give you a comparison with the gradient reduced later to 0.4 per cent in twenty years.

"I have made a study of the plans and profiles and also the correspondence connected with this location and I attach herewith a comparative estimate I have prepared from which you will see that if a 1 per cent grade had been adopted as per line "A" in red on the accompanying plan, this line would be 3.67 miles long or 0.31 miles longer than the present line, 2 miles only of which would be new work, beginning from a point two miles East of Quebec Bridge on the line built by the Quebec Bridge Company. The saving in construction cost that would have been effected would have amounted to $389,000 as compared with the cost of the constructed line shown in black, marked "B" on accompanying plan, which from Station 60—Station 240 is 3.36 miles long, from point to point, included in the comparative estimates. Cost of rail fastenings and track-laying not included in comparative estimates. If you deduct from this the operating expenditures that would be incurred by reason of distance, curvature, rise and fall, which are as per Transcontinental Railway locating value:

.31 miles long at 26,000 per mile	$ 8,060.00
107 degrees more curvature at 40.00 per degree	4,280.00
71′ more rise and fall at 350.00 per foot	24,190.00
Total	$37,190.00

"The net saving would be $351,810.00.

"As the Quebec Bridge is a 1 per cent grade I have not included the cost of a pusher engine, as I am of opinion that the load that can be hauled over this bridge can be hauled over the alternative line shown in red on the accompanying plan.

"The interest on $351,810.00 at 4 per cent for 20 years would amount to, at simple interest, $281,448.00. This shows that had the red line on plan been adopted, a very large saving in first cost would have been effected and the interest charge would have graded a 0.4 per cent line twenty years later, six of which have already passed.

* * * * * *

"At compound interest the saving would be $770,850.00 in twenty years.

"Yours truly,

"GORDON GRANT,

"Chief Engineer."

The plans referred to in this report will be found on exhibit. (See Exhibit No. 31).

Beyond pointing out that the operating company, the Grand Trunk Pacific Railway, objected strenuously to the line as constructed, no further comments are necessary on this avoidable expenditure of $351,810.00.

COAL CREEK FILL.

The Transcontinental Railway crosses the ravine, through which Coal Creek flows, at a point 45 miles westerly from Moncton. The embankment at this point is 6000 feet long from cutting to cutting and the rail level is some 85 feet above the creek level.

The location of the railway at this point was made by Mr. H. M. Balkam who reported that he had thoroughly exhausted the ground in that vicinity and was forced to take this crossing of the gulley as being the most economical, considering the distance and cost of construction of any alternative line.

The original method suggested for crossing this gulley was to construct a steel viaduct, 1000 feet long, over the deepest portion and to build embankments at either end. The work forms part of contract No. 1, which was awarded to the Grand Trunk Pacific Railway who sub-let the entire work to Messrs. Corbett and Floesch. Mr. Foss, however, being in favor of an embankment at this point, having evidently taken the matter up with Messrs. Corbett and Floesch, wrote to Mr. Guy C. Dunn on January 29, 1908, stating that the contractor would make the fill regardless of overhaul for 30c per cubic yard, and allowing for the construction of a 20 foot concrete arch to provide waterway, shows a saving in favor of the arch and fill of $2,269.15.

After the proposed change in the plans had been discussed at Ottawa, the matter was referred to the Grand Trunk Pacific Railway, who approved the proposal to build an arch and fill the gulley—said approval being contained in Assistant Engineer Woods' letter of March 28, 1910.

Mr. Lumsden, on March 30, 1908, submitted the matter to the Commissioners of the Transcontinental Railway for approval, and Mr. Lumsden was notified of their approval on March 31, 1908. The work proceeded and the records do not show that any further reports were made on this matter until December 3, 1909, when the following report was submitted by District Engineer Foss. The letters from Mr. Wheaton and Mr. Woods, Assistant Chief Engineer of the Grand Trunk Pacific, referred to in Mr. Foss' report, are also reproduced herewith:

"The Commissioners of the Transcontinental Railway,
Office of the District Engineer.
No. 60-A.

"St. John, N.B., December 3, 1909.

"Gordon Grant, Esq.,
Chief Engineer, "N.T.C.R.," Ottawa, Ontario.

"Dear Sir:—

"Re Classification at Coal Creek.

"When the special arrangement was made with Messrs. Corbett and Floesch, through the Grand Trunk Pacific, for the substitution of the solid embankment in place of the steel viaduct, it was supposed by everyone who had been on the ground that the material would be earth of a reasonable character to move and that it would make a stable embankment. In fact, on the brow of the bank on the west side of Coal Creek there was

sand showing, but it turned out that this was only two or three feet in depth over a very small area; and, when the borrow pits were opened, especially on the east side, the material was found to be of a hard pan nature, which, when exposed to the air, and wet with heavy rains, became impossible to hold in heavy embankments, and large quantities of it sluffed outside of the slope stakes altogether—it became evident that some change had to be made to secure more stable material. The only train haul material on the contract was in the gravel hills at the North River ballast pit, 45 miles away, and, of course, it was entirely out of the question to expect contractors to hold up their work until track could be completed for this 45 miles from Moncton, and then to take, probably, a year and a half to haul the necessary material this long distance. The only other alternative was to go down to such depth into the solid rock, as would give a large percentage of rock, to ensure the stability of the bank; for if we had attempted to make this fill by stripping the rock, it would have taken, at least, 20 per cent more material, owing to the much flatter slope at which this material could have been made to stand, and this, together with the fact that it would have largely increased the overhaul, the necessary right of way, clearing, grubbing, and lengthening of the arch under the embankment, it would have run the cost to, at least, $400,000 for this embankment. Of course, the material required to take the place of the viaduct has to be put in by the contractors at 30c per yard, no matter what it may consist of, but on the basis of rock borrow at $1.10, as allowed at other points on the district, the total cost of the fill will not exceed $350,000, and we shall have a first-class embankment, which will neither slide, sluff off, nor wash down. I have withheld any change in the classification until the work should be so nearly completed that I could be absolutely sure that the expense, after allowing rock borrow for the solid rock excavated, would be a good deal less than it would have cost for earth material stripped off the rock.

"Messrs. Corbett & Floesch have carried on this work vigorously, under all the discouraging conditions and last month they asked, through the Grand Trunk Pacific, that they be allowed rock borrow for the solid rock excavated. Mr. Woods of the Grand Trunk Pacific came down personally and looked over the work, and wrote me urging such classification and readjustment of classification on Residencies No. 1 and 2. I herewith enclose copy of his letter. I have, therefore, directed that 159,000 yards loose rock and corresponding overhaul be deducted, and in its place an equal amount of rock borrow be inserted, without overhaul. Mr. Wheaton has, also, readjusted the classification on Residencies No. 1 and 2. I enclose herewith copy of Mr. Wheaton's letter, of which I thoroughly approve.

60-A. "St. John, N.B., December 3, 1909.

"Gordon Grant.

"I consider that Messrs. Corbett & Floesch are fully entitled to this and trust that you will approve of same, and take such steps as will be necessary to have the change confirmed by proper authority.

"Yours very truly,

"C. O. FOSS,
"District Engineer."

Enclosures.

"Moncton, N.B., November 30, 1909.

"C. O. Foss, Esq.,
District Engineer "A,"
St. John, N.B.

"Dear Sir:—

"Since taking over this division, I have been making an examination of the classification, and find that Residencies No. 1 and 2 are much lower in this respect than the other Residencies of this division, while the line of demarkation all over the Division is practically the same throughout, and the material precisely the same. The reason why this classification existed is accounted for, partly by the fact that Cross Sections were not fully worked out, and percentages, only, were returned until the actual quantities were determined, and partly for the fact that previous classifications had been cancelled. As an example: In one case, a stream diversion, in the bottom of a borrow pit at the East end of the 11th Mile, had been returned partly as Common Excavation, and partly as Loose Rock, whereas it had been excavated in the Solid Rock. The borrow was necessary, in order to make the North River fill, and, if the pit had not been sufficiently deepened, three culverts would have been necessary, and extra Right-of-Way bought, from which to obtain the necessary material. The amount thus returned as Solid Rock is 2671 yards, whereas about twice this quantity was actually excavated. I have, however, only returned an amount of Solid Rock to correspond with the necessary width and depth to provide sufficient drainage. I have made a personal examination of all the ground with the Resident Engineers, and have restored the classification to what I consider is proper.

"Residency No. 5 was, I thought, a little low judging from the nature of the cuts and borrow pits; but, on examining Cross Sections and Measurement books, can find that little change is necessary, if any.

"I could not quite finish this investigation, and am not prepared to say just now, but think a small increase may be required in December.

"I also found that on some Residencies no return had been made for grubbing on borrow pits, except where the pits were less than 4 ft. in depth. I have gone into this matter and have returned the greater part of this grubbing in the November Estimate. The balance was not quite fully worked out, but will be returned in the December Estimate.

"Very truly yours,

"L. H. WHEATON,
"Division Engineer No. 1."

"Montreal, P.Q., November 16, 1909.

"C. O. Foss, Esq.,
District Engineer N.T.R.,
St. John, N.B.

"Dear Sir:—

"I recently received a letter from the Corbett & Floesch Company, subcontractors for this company for the work from Moncton westerly for fifty miles, in which they state that they are dissatisfied with the classification as returned on estimates to date. on Residencies No. 1 and 2, and on the work at Coal Creek, Residency No. 5.

"They state, in connection with the latter, that the greater portion of the embankment has been made up of solid rock, taken from borrow pits, located and staked out by your assistants. They further state that when the borrow pit located on the east side was opened, the material proved to be of a soft and slippery nature, impossible to hold in the embankment, and for this reason they were stopped from using this material and ordered to take material for the embankment from further east, which proved to be largely solid rock. On this work of which at least 85 per cent has been completed, there has been estimated one-half the quantity of material moved as loose rock and the remainder at 30c per yard, which is unsatisfactory and they request that I take the matter up with your department for a satisfactory adjustment. Since the receipt of this letter, I have visited their work and have given special attention to the heavy embankment at Coal Creek and find the statement made by our sub-contractors substantially correct.

"Under a special arrangement made by Chief Engineer Lumsden, and approved by this company, an arch culvert and embankment were substituted for a viaduct about a thousand feet in length, as first proposed, with approaching embankments, in which there were about 300,000 cubic yards. The change in plans required additional embankments of about 325,000 yards. In this agreement, the contractors were to be allowed (see Mr. Lumsden's letter of April 1, 1908) schedule price for the arch culvert and earth filling, with an addition of 5c per cubic yard overhaul, regardless of the length of the overhaul, making the total price of common excavation in that embankment, 30c per cubic yard.

"It now appears that but little of this material was considered suitable for the embankment and you were forced to go further east where the material proved to be largely solid rock. It would appear, however, that in any event it would have been found necessary to borrow solid rock, to have built the embankment, had the change not been made and the fact that solid rock entitles them to certain classification for same. I think, therefore, that the complaint of our sub-contractors for this part of the work is well founded. It is not within my province to attempt to dictate as to how work should be classified and returned, but I think you will agree with me that the proper allowance for solid rock borrow has not been allowed on this rock. You have an arrangement with other contractors on your district for rock borrow for heavy embankments, which, seemingly, might be applied to this instance, and with the data in your possession regarding quantities, there ought to be no difficulty in arranging an equitable adjustment.

"With regard to the complaint of our contractors in connection with classification on Residencies No. 1 and 2, I am not so well advised, as to the character of the work as I should wish. If the classification was revised by the Division Engineer, there must be some reason why the classification on Residencies No. 1 and 2 is considerably less than Residencies 3 and 4. My own opinion, based upon what I saw when the work was opened, was that on Residency No. 1 the classification should be lighter than on either 2 to 3. Our District Engineer, who has examined this work more carefully than the writer is very much better prepared to say if, in his judgment, the classification is correct, as returned on Residencies No. 1 and 2. If not, I think that both sub-contractors and ourselves will be willing to abide by the joint decision of yourself and Mr. Bouillon.

"Trusting that these matters may be, by your decision settled satisfactorily to all, I am,

"H. A. WOODS."

As will be noted from these reports, the amount of available common location for the construction of this fill was largely over-estimated and it became necessary to borrow rock to the extent of 205,876 cubic yards to complete the embankment. This rock borrow was approved of by the Grand Trunk Pacific (the contractors for this work) and paid for at the special rate of $1.10 1-4 per cubic yard, this rate being authorized by an order in council, passed on January 13, 1911.

The size of the concrete arch constructed was increased from 20 to 25 feet "in the interest of entire safety" according to Mr. Foss' letter of May 31, 1912.

The total cost of the material borrowed for this fill and the cost of the culvert is as follows:

Borrow, North and South—Station 2306-2361—			
Loose rock	33,439 cu. yds. @ 55c	$18,391.45	
Over haul	1,242,025 cu. yds. @ 1c	12,420.25	$30,811.60
Ditches, North and South in Fill—			
Loose rock	2,322 cu. yds. @ 55c	$ 1,277.10	$ 1,277.10
Special Rock Borrow	205,876 cu. yds. @ $1.10¼	$226,978.89	$226,978.89
Common Excavation Special	282,693 cu. yds. @ 30c	$ 84,627.90	$ 84,627.90
			$343,695.58
Cost of 25 ft. Concrete Arch—			
Excavation, common	1,424 cu yds. @ 25c	$ 373.50	
Excavation, no coffer dams	1,887 cu. yds. @ $1	1,887.00	
Excavation, with coffer dams	1,855 cu. yds. @ $3	5,565.00	
Concrete 1-2-4	759.5 cu. yds. @ $12	9,114.00	
Concrete 1-3-6	3,414 cu. yds. @ $11.50	37,554.00	
Paving	56 cu. yds. @ $ 3.50	196.00	
		$54,689.50	$ 54,689.50
Total cost			$398,385.08

These figures have been supplied by District Engineer Foss.

Mr. Uniacke, Bridge Engineer of the Transcontinental Railway, in a letter to the Investigation Commission, states, "the cost of a wooden trestle, covering 2,000 feet of the deepest portion of fill at Coal Creek, is $79,667.58.—The cost of a steel viaduct over this same distance would be $246,110.00."

The actual cost of the fill and structure for this 2,000 feet is $394,385.05, which is a reduction of the value of 8,000 cubic yards of material, which was in excess of the requirements for forming this embankment. That is we have reduced the cost of the fill by the value of the amount of the material which had to be excavated anyway from the cuttings on either side. We find, therefore, that if a wooden trestle had been constructed here, the cost would have been $314,717.50 less than the cost of the fill and arch, and if a steel viaduct had been used, the difference would be $148,275.08.

This particular location is included in the statement of wooden trestles, from which will be noted that if a trestle had been built and the permanent work undertaken in 7 years' time (four of which have already passed), the ultimate saving to the country would have been $239,270.00. (See Exhibit No. 22.)

The evidence given by Mr. Foss goes to show that it was on account of the unreliable character of the material when deposited in the fill that it became necessary to resort to rock borrow to complete the embankment, and that when these conditions confronted him, he took the matter up with Ottawa. (P. 97.)

The records however do not show that any report was made to headquarters before a large yardage of rock had been blasted out and used. Mr. Foss' letter of December 3rd was the first intimation received by the Chief Engineer, that the work was being carried on on a more expensive scale than determined on.

District F, Mileage **5.8**, Residency **19.** Very Heavy Blasting. Page **70**

District F, Reddit. Freight Shed. Page **86**

District F, Reddit. View showing the two Stations. Page 86.

District B, Cap Rouge Viaduct. View showing Concrete Pedestal for River Span. Page 88

The Grand Trunk Pacific officials, occupying, as they did in this case, the dual positions of contractors, and supervisors and inspectors of the work, with a view to economical construction, as provided for in clause 7 of the Act, do not appear to have taken any action, beyond approving of the whole transaction and urging the payment of the rock borrow price. See Mr. Woods' letter of November 30th, 1908.)

The Commission find that if a wooden trestle had been erected here, the saving in seven years would have been $413,853.00, and the ultimate saving when this trestle had been made permanent, $239,270.00, and that this money is lost to the country through the policy which prohibited such methods of construction.

And, furthermore, they feel that when it was discovered that the cost of this fill was to be so largely in excess of the estimate, the local officials should have reported the matter to headquarters, when some means might have been found of overcoming this extra expense, involved by borrowing 205,876 cubic yards of rock at $1.10½ per cubic yard.

CHIPMAN GRADE.

The railway crosses the Salmon River at Chipman, N.B., fifty-seven miles westerly from Moncton, on a bridge sixty-five feet high. This bridge and the embankments forming the approaches to the bridge constitute a crossing of the Salmon River Valley two miles in length. This bridge is at the foot of an 0.4 per cent gradient, seven miles long, rising eagerly from Mileage 57 to Mileage 50, and passing through a cutting two miles long from Mile 52 to Mileage 50 where the summit is attained.

An examination of the engineers and an inspection of the country indicates that the proper location for the line had been secured, but that the 0.4 per cent. gradient did not fit the country, and its adoption necessitated the two mile cutting at the summit and the two mile embankment at the foot of the grade.

District Engineer Foss, at the request of the Commission, has submitted a report showing the saving which might have been made at this location had the locating engineers been permitted to introduce an 0.5 per cent gradient from Chipman to the summit of the hill. This saving is made up as follows:

Saving in construction of bank west of river		$35,000.00
47,532 cubic yards solid rock excavation	@ $1.50	71,298.00
76,537 cubic yards loose rock excavation	@ .50	38,268.00
26,195 cubic yards common excavation	@ .21	5,500.00
		$150,066.00

To this saving is to be added the cost of the viaduct approach on east side of river, which item Mr. Uniacke will be able to give you readily.

Mr. Uniacke, under date of March 18th, gives the cost of the portion of the viaduct which would be eliminated by the introduction of the 0.5 per cent gradient as $28,158.00 so that the total amount which might have been saved is $178,224.00.

This piece of railway construction is an excellent example of the excessive expenditures occasioned by limiting the locating engineers by hard and fast rules. If they had been permitted to add one-tenth of a foot per hundred feet to the rate of gradient to which their rigid instructions held them, they could have eliminated the two mile cutting containing 150,264 cubic yards of material, and reduced the cost of the Salmon River Bridge by the amount shown.

And we find that in this portion of the line, namely between Quebec and Moncton, with two pusher grades in existence and their use freely advocated by

Mr. Butler on account of the paucity of traffic contemplated by all concerned, the adherence to an actual 0.4 per cent gradient at this and similar locations was quite unjustifiable.

LITTLE SALMON RIVER VIADUCT.

185 miles west of Moncton the National Transcontinental Railway having traversed some rugged country crosses the valley of the Little Salmon River at an elevation of some 200 feet above the water line, and at a point where the valley is over 4,000 feet wide.

The crossing was accomplished by the construction of a steel viaduct 3,920 feet long, containing 13,991,310 pounds of steel and costing, including sub and superstructure, $815,070.87.

The railway construction on either side of this viaduct is of the most costly character, and the very heavy rock cuttings and deep fills in this vicinity might have been greatly reduced and the cost of the viaduct itself entirely eliminated by the adoption of a pusher grade line.

We find that in addition to the 0.4 per cent grade line as constructed, two alternative lines were surveyed in order to find a means of avoiding or reducing to some extent this costly crossing.

One line was projected up the valley of the Little Salmon, crossing that river at a height of about 30 feet over the water line and returning on the west side of the river to the present line. This line, however, proved to be about 6½ miles longer than the viaduct line and its construction would have cost as much or more, so that it was abandoned as an alternative. The second line projected was a pusher grade line using 1.1 per cent gradients, which is the same rate as used for the other pusher grades in this portion of the railway.

In connection with the proposition to construct pusher grades at this location and the saving to be effected thereby, we quote, here, extract from evidence given by District Engineer Foss on this subject:—

> Q. In your evidence, in June last, you stated that if a jack-knife pusher grade had been constructed across the Little Salmon River valley, that something like one and a half million dollars could have been saved. —since that time you have made a further estimate. What are the figures of that estimate?—A. Had a jack-knife pusher grade been adopted at the Little Salmon River, there would have been saved $1,644,882.00, and I think that that would have been somewhat increased if a careful pusher had been worked out and located.
>
> Q. You think that a still larger saving than that would have been effected?—A. Yes, probably a saving of one and three-quarter million dollars.
>
> Q. Having in mind the character of the railway, its cost, and the business that could reasonably be expected of it, would you, if left to your own discretion, have constructed this jack-knife pusher grade instead of the big trestle?—A. I would have constructed it anyway, left to my discretion.
>
> Q. Why?—A. Because, calculating the money at four per cent interest, the interest on the money that would have been saved would probably amount to $75,000.00, and that would certainly pay for pushing the heaviest traffic that is likely, ever, to go over the road.

Mr. Foss's evidence is clear on the saving in, and reasons for the pusher grade adoption.

In connection with the Pusher Grade at Lake Pohenagamook, Mr. MacPherson, Asst. to the Chairman, in a letter to Mr. Grant under date of August 12, 1912, writes as follows:

> "Mr. Gutelius's remarks, that a pusher grade of about 1.47 per cent balances a ruling grade of .06 per cent, are, of course indisputable, but my reasons for not suggesting a steeper pusher grade than the 1.1 per cent adopted, were that I considered freight traffic between Moncton and Quebec would be for a long time and perhaps always, so moderate that most, if not all, of the freight trains and the heaviest passenger trains would not require a pusher over it; whereas, had it been evenly balanced with the .06 ruling grade, both comparatively light freight trains and heavy passenger trains would require pushing. Time will tell whether I was wrong in my judgment of the volume of traffic, but I am still of the same opinion in the matter."

The question of constructing these pusher grades was first raised by Mr. Foss in December, 1907, and after the matter had been reported to Ottawa, Mr. MacPherson wrote to the Chief Engineer, under date of January 8, 1908, as follows:

"File No. 2690.

"H. D. Lumsden, Esq.,
"Chief Engineer, Jan. 8th, 1908.
"Ottawa.

"Dear Sir:—

"I send you herewith copy of estimate made by Ass't District Engineer Foss, and Mr. Dunn's letter transmitting same, proposing another pusher grade about 10 miles long at a point about 30 miles west of the pusher grade near the Tobique River, which has been approved of. You will see by his estimate, which is not in detail, that he claims a saving of $1,146,019 on construction, or a net saving of $650.809, when the cost of operation is considered. There is not sufficient detail in this estimate to check it by, and, as you see, it is based on a trial location. One object of the pusher is to avoid the very large Viaduct over the Salmon River, and, as we have so many large steel structures, it might hasten construction if we could throw out such a large one. One difficulty about changing our line at present is the fact that it is proposed to let contracts soon, and we only have a trial location over this proposed pusher grade.

"Will you kindly have the matter settled and advise what steps should be taken.

"Yours very truly,

"D. MACPHERSON,
"Ass't Chief Engineer.

"P.S.—The pusher grade line is 0.611 miles the longer and the curvature and rise and fall is greater than on the standard grade line."

A search of the Chief Engineer's record, where this letter is on file, does not show that any action was taken on the matter.

Mr. Foss's evidence and Mr. MacPherson's letter indicate the general expectations as regards the volume of traffic between Quebec and Moncton. The arguments which present themselves in connection with this subject are,—

In favour of the air line, involving the immediate construction of the viaduct,—

1. This line is on a 0.4 per cent grade.

In favor of the 1.1 per cent pusher grade lines,—

1. An immediate saving of $1,750,000.00.

2. A railway constructed to these grades will be as efficient as the 0.4 per cent grade line to handle the business for years and years to come.

3. By constructing the pusher grade line, the Commission would have saved in ten years' time in interest above $25,000.00 more than the entire cost of the viaduct, the exact figures being $840,000.00.

4. In twenty years' time, the original saving, with interest, would have amounted to $3,832,500.00, which would have been sufficient to rebuild the line to suit any volume of traffic and still leave an ultimate saving of $1,300,000.00.

In view of these facts, the Commission concludes that this extra expenditure of $1,750,000.00 was ill-advised and made without due regard to the interests of the country.

LA TUQUE PUSHER GRADE.

Fitzpatrick Divisional Yard, which was once known as La Tuque Yard, is the first engine terminal west of Quebec, and is 126 miles distant from the north abutment of the Quebec Bridge. Approaching this yard from the East, commencing at about mileage 115, the railway drops on an 0.4 per cent compensated grade to the yard level at mileage 126, through a very rugged and mountainous country. The curvature on this portion of the line is almost continuous, the maximum curve of 6 degrees having been used liberally, and despite this, the cuttings encountered are very heavy, particularly in the vicinity of the Little Bostonnais River.

The locating engineers projected an alternative line for this location, which involved 4.8 miles of a .65 per cent grade, adverse to east-bound traffic, to be operated as a "pusher grade" and in June, 1906, District Engineer Doucet wrote to the Chief Engineer, advocating the adoption of the pusher grade line and showing a saving in its favor of $485,807.00, after taking into consideration both construction and operating costs (p. 366).

Mr. Lumsden, on June 15, submitted the proposition to the Commissioners, recommending that approval be obtained from the Government for the construction of the road with the pusher grade, as suggested by District Engineer Doucet. A "pusher grade" is one over which it is necessary to help a fully loaded train with an extra engine.

The Commissioners submitted the proposition to the Government with all the correspondence, showing the saving and how it was to be made, who in turn referred it to Mr. M. J. Butler the then Deputy Minister of Railways and Canals. That gentleman advised the Government not to approve of the pusher grade "for the reason that it has been stated over and over again by members of the Government that a four-tenths grade had been secured from Winnipeg to Quebec, and it seems to me that no circumstances should be permitted to interfere with the adoption of this grade between the points named." This appears to have been such an unanswerable argument that the Government, while appreciating the fact that no advantage whatever was to be derived from it, insisted on a four-tenths grade, thereby incurring unnecessary expenditure of over a million dollars. The Commission also submitted all the facts to Mr. Hayes,

President of the Grand Trunk Pacific Railway Company, who, while admitting that the reasons given "are all practical reasons which may be very properly advanced for the adoption of the pusher grade," went on to say "In my opinion, however, the Commission should carefully consider with the Government the effect upon the minds of the public regarding this Transcontinental Railway, which has been widely advertised as being the only low grade line from the Atlantic to the Pacific." It will be seen that neither Mr. Butler nor Mr. Hayes, the one an engineer and the other an operator of railways, offer any reason why, from a commercial point of view, this million dollars should not have been saved.

Mr. Doucet furnished this Commission with a comparative estimate between the actual cost of the line as constructed, mile 115-122.7 "B" and proposed 0.65 pusher grade line "C" at La Tuque, which is:

Actual cost of line as constructed, mile 115-122.7		$1,345,251.00
Actual cost of Divisional Yard constructed		569,273.00
Total		$1,914,524.00
Estimated cost of 0.65 Pusher Grade Line	$641,235.00	
Estimated cost of Divisional Yard on Upper Level	210,859.00	
Total	$852,094.00	
Increased cost by adoption of present line		$1,062,430.00

Mr. Doucet gives the following as the history of this piece of construction (p. 365): "On making the final survey of the line at La Tuque, we found that by the actual levels we could not possibly get down to the level of the La Tuque Flats, using a 4.1 grade, and unless we took a very roundabout way, increasing the length of the line some three miles, and at a very excessive cost. The use of a direct 4.10 grade also prevented us from using the Flats at La Tuque for a Divisional Point. We found that a direct line could be held by starting at Creek Beauce to the La Tuque Flats, using a 0.65 grade. I had the engineers look very carefully over the ground and run a number of lines to prove that it would be in the interests of the Commissioners to use this direct line. This 0.65 grade line could not be considered altogether as a Pusher Grade. It was much shorter, had less curvature, and would cost much less to build than the 4.10 grade. It would also have enabled us to use the Flats at La Tuque for a Divisional Yard, whereas by the adoption of the direct 4.10 grade, we were forced to move their yards two miles further to the west at what I might call an excessive cost. By adopting the 0.65 grade we would have saved $300,000.00 on the construction of the yard alone."

It was not pretended by any person that an advantage would be gained either in construction or operation by adhering to the 0.4 per cent grade at this place.

Although Mr. Doucet in his estimate made allowance for the cost of an extra engine to help trains over the grade, in practice such an engine would be supplied at small expense by reason of the grade being near a divisional yard where there are extra engines available. Even the sentimental reason on which the Government based its refusal, and Mr. Hayes, his hesitation to approve that in order not to disappoint the public in its expectation of possessing the only four-tenths Transcontinental Railway, did not exist because as was well known the approach to the Quebec Bridge is over a pusher grade. We find that there was no justification whatever for the expenditure of $1,062,430.

For correspondence in connection with the above see Exhibit No. 30.

LAKE POHENAGAMOOK PUSHER GRADE.

Two pusher grades, that is gradients of such a rate that engines pulling the maximum number of cars which they can haul up the standard rate of gradient require to be assisted or pushed up these steeper gradients, were constructed between Moncton and Quebec.

The one between Mileages 146 and 159 is adverse to eastbound traffic and rises at the rate of 1.10 feet per hundred feet, the other adverse to westbound traffic rises on the same rate of gradient, namely, 1.10 per cent. from Mileage 174 to Mileage 163 (District "B.")

The peculiar condition apparent here is that both pusher grades are of the same rate of gradient, while they should be proportional to the eastbound and westbound grades to which this railway has been constructed, namely, 0.4 per cent and 0.6 per cent, and the rate of the gradient between Mileages 174 and 163 might have been increased to 1.47 per cent., and exactly the same results in operation attained while the construction saving would have amounted to $43,500.00.

This amount is based on an estimate submitted by District Engineer Doucet, who stated in his evidence that had the matter been left to his own judgment and authority, he would have adopted the steeper gradient, and thereby effected this saving. Mr. MacPherson, who, as Assistant Chief Engineer, was directly interested in the gradients and profiles, in a report to Mr. Gordon Grant under date of August 12th, 1912, explains the matter as follows:—

"Mr. Gutelius' remarks that a pusher grade of about 1.47 per cent balances a ruling grade of 0.6 per cent are of course indisputable, but my reasons for not suggesting a steeper grade than the 1.10 per cent adopted were that I considered freight traffic between Moncton and Quebec would be for a long time, and perhaps always, so moderate that most, if not all, of the freight trains and the heaviest passenger trains, would not require a pusher over it; whereas, had it been evenly balanced with the 0.6 ruling grade, both comparatively light freight trains and heavy passenger trains would require pushing. Time will tell whether I was wrong in my judgment of the volume of traffic, but I am still of the same opinion in the matter."

Mr. Tye confirms the Commissioners' opinion that any money expended in obtaining a 1.1 per cent gradient where a steeper grade was permissible was wasted, and, though the amount shown as having been unnecessarily expended at this location is based on the profile of the line as constructed, we have no hesitancy in stating that had the locating engineers been properly instructed in this matter, a far greater sum might have been saved.

The conditions outlined in Mr. MacPherson's report as regards the volume of traffic east of Quebec appear to be reasonable and well founded, and this item of $43,500.00 fades to insignificance when contemplating the millions expended on the 460 miles of railway between Moncton and Quebec in obtaining 0.4 and 0.6 per cent gradients as provision for trains of a length and tonnage unknown in Eastern Canada.

SECOND SIDINGS.

A station track plan was adopted by the National Transcontinental Railway which provides for two side tracks located side by side on the same side of the main track at all stations which are located about seven miles apart. These sidings have a total capacity of 150 cars, or four average length trains, and are located regardless of volume of traffic, local business or the expense, as many of them are located where heavy rock cutting was required, and being outside the grading

required for double track, become an absolute waste unless required for local business. This plan was adhered to as regards the grading of the sidings between Graham and Winnipeg, and at some of the points in Quebec and New Brunswick. Only after the rails were laid upon several of these sidings was it realized that the extra siding was a useless expenditure and the plan eventually abandoned. (See Exhibit No. 24.)

The standard practice in siding construction on new Canadian railways is to build single side tracks in convenient locations at distances of about ten miles apart, and to extend this single siding as required for the volume of traffic and later on to build intermediate similar sidings using them finally as double track.

The practice of building second tracks at stations is only resorted to when the local business at such stations requires such facility for the loading and unloading of cars, or when the operation of the road becomes hampered by the number of trains or *cars to be taken care of* at that point.

A statement has been compiled covering the cost of the building of these extra side tracks, and is attached herewith, from which it will be noted that had the construction of these second siding tracks been postponed until traffic warranted it a total saving of $374,410 would have been effected.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement showing locations of second sidings and amounts expended thereon.

(Note:—No tracks are laid at points marked thus—x.)

District A.—

Second sidings constructed at Chipman, Cantor x, Sudbury x, McGivney's Junction x, Maple Grove x, Summit x, Longley, Plaster Rock, Grand Falls, Mileage 195.5, Bellefleur, St. Leonards, Quinibis, Green River, Mileages 237.5. 242.5, and 252.0.

Cost of grading	$38,253.00
Cost of rails, fastenings, switches, ties, and track laying	16,927.00
Total cost, District A	$55,180.00

District B.—

West of Quebec Bridge, second sidings constructed at Mileages 5.2, 65.0, 93.0, 85.0, and 154.5.

Cost of grading	$33,867.00
Cost of rails, fastenings, switches, ties and track laying	17,925.00
	$51,792.00

District C.D.—

One second siding constructed at the west crossing of the Mettagami River, Mileage 134.6.

Cost of grading	$3,962.00
Cost of rails, fastenings, switches, ties and track laying (approx.)	1,500.00
Total cost District C.D.	$5,462.00

District E.—

One second siding constructed at Station 1864.

Cost of grading	$3,584.00
Cost of rails, fastenings, switches, ties and track laying	2,100.00
Total cost, District E	$5,684.00

District F.—

Second sidings constructed at Hudson x, Webster x, Taggart x, Sunstrum x, Hilledge x, Richan x, Freda x, Hunter x, Morgan x, Quibell x, McIntosh x, Canyon x, Flavel x, Jones x, Farlane, Brinka x, Edna x, Minaki x, Wade x, Malachi x, White x, Ophir x, Dott, Brereton, Elma, Hazel x, Vivian, Anola x, Dugald.

Cost of grading	$235,820.00
Cost of rails, fastenings, switches, ties	20,452.00
	$256,272.00

Summary.

District A	$55,180.00
District B	51,792.00
District C.D.	5,462.00
District E	5,684.00
District F	256,272.00
	$374,410.00

HEAVY RAILS IN SIDING.

The commissioners of the Transcontinental Railway have adopted and used steel rails weighing 80 lbs to the yard in all main track sidings, yard tracks, ballast pit tracks, etc. It is the practice on other railways to use second hand rails of lighter weight in unimportant tracks. 65 lb. rails would have been the proper weight for the secondary tracks on the Transcontinental Railway, the main track rails being 80 lbs.

There are 367 miles of new 80 lb. rails and 947 new 80 lb. turnouts used in the secondary tracks on the Transcontinental Railway. A statement supplied this Commission by Chief Engineer Grant shows that if new 65 lb. rails and turnouts had been used in these secondary tracks and the prices paid per ton were the same as the prices paid for 80 lb. rails, switches, frogs, etc., a saving of $340,500 could have been effected, and if second hand rails (which are usually procurable at a price of $5.00 per ton less than new rails) had been purchased and used as is the usual custom, this saving would have been increased to $520,000.

The responsibility for this avoidable expenditure rests primarily with Chief Engineer Lumsden who wrote the Commissioners, March 25, 1908 (Exhibit 25): "Personally I feel that there is a great advantage in having a uniform rail in use on the entire system but as this proposition will affect the Operators of the road more than the Constructors, the Operating Company should have their suggestion considered." The Grand Trunk Pacific Railway Company in Mr. Woods' letters, March 5th, 1906, states it will be satisfactory to the Grand Trunk Pacific Railway Company if the Commission decide to use 80 lb. rails throughout. The Commissioners in their reply of April 15th, 1908, to Mr. Morse's letter of March 20th, 1908, wherein he states "I write to suggest that it would be well to order light rail for side tracks as it would lessen our capital expenditure." stated "If it now be

desired that a change be made, the Commissioners think that such should be requested by a resolution of your (Grand Trunk Pacific Railway) Board." Nothing further was done by the Grand Trunk Pacific Railway Company, but the new Chief Engineer of the Transcontinental Railway, Mr. Gordon Grant, took the matter up on April 8th, 1910, with Chief Engineer Kelliher of the Grand Trunk Pacific Railway Company and in Mr. Kelliher's reply of April 19th, 1910, he says:—

> "Your suggestion to substitute 60 lb. rails for 80 lb. rails in all yards and sidings for which rails have not been ordered or laid is fully approved by our Vice President and General Manager and myself and I would be glad if you would recommend the adoption of the same to the Commission."

whereupon, Mr. Grant recommended the use of light rails in sidings on April 26th, 1910, and in his recommendation suggested that at that date a saving of at least $150,000 might have been effected. The Commissioners, however, paid no attention to Mr. Grant's recommendation and purchased sufficient 80 lb. rails for all purposes, so that the responsibility for the use of those expensive rails in unimportant tracks subsequent to Mr. Grant's recommendation, rests entirely with the Commissioners.

It should be pointed out that the operating company gains an advantage by having 80 lb. rails in the sidings in that these rails can be exchanged for defective or worn out main track rails, whereas, if the sidings were laid with lighter rails, the operating company would be compelled to purchase new 80 lb. rails for these renewals or replacements at their own expense and cost.

Thus the use of new heavy rails in sidings was equal to loaning the operating company from $340,000.00 to $520,000.00 for rail maintenance without interest for seven years and thereafter at the rate of three per cent per annum, and the saving which the Commissioners might have effected by adopting the lighter rail would have, at the end of seven years, amounted to from $447,000.00 to $683,-000.00, according to whether new or second hand rails were purchased.

DOUBLE TRACKING.

At three locations on the Transcontinental Railway the Commissioners undertook the construction of a double track railway at direct variance to the wording of the Act which governed their operations.

At Cap Rouge, or rather between the St. Foye yard, which is the Quebec Freight Terminal, and which lies immediately north of the Quebec Bridge, and the Cap Rouge viaduct, there has been constructed about one and a quarter miles of double track at an additional cost over and above the cost of a single track for this distance of $97,838.02, made up as follows:

Cut Station 81-130.

Extra yardage taken out for double track:—	
S. R., 58,472 cubic yards, at $1.50	$87,708.00
C. E., 2,517 cubic yards at .21	528.57
Extra track material and ballast	9,601.45
	$97,838.02

It will be noted that the cost per mile for this second track is inordinately high, and was caused by the fact that the major part of the work was the excavating for double track of the great cutting immediately east of the Cap Rouge viaduct. S. 81-120 (3-4 mile.)

Prior to the Transcontinental Railway being located at this point, the Canadian Northern Railway, on behalf of the Quebec, New Brunswick and Nova Scotia Railway, had submitted to the Department of Railways and Canals, plans for approval of a proposed line of railway which was to occupy practically the same ground as the Transcontinental Railway does now, from Cap. Rouge viaduct to the Quebec Bridge. Authorization for the construction of this line was obtained by the Canadian Northern Railway Company under an order of the Board of Railway Commissioners, dated August 15th, 1904.

Through the energetic action of Mr. Wade, who was Chairman of the Board of Commissioners of the Transcontinental Railway at that date, this order of the Board of Railway Commissioners was cancelled by an order of the Governor General in Council, dated June 28th, 1905, so that at that date the Transcontinental Railway was in a position to proceed with the construction of their single track railway without any interference from other interests.

In August, 1905, Mr. Parent was appointed Chairman of the Transcontinental Railway, and in September, 1905, Mr. Lumsden issued instructions to build double track from the Quebec Bridge to Cap Rouge viaduct.

Mr. Lumsden, in his evidence (p. 395), states that the double track was constructed with the idea of accommodating the Canadian Northern Railway as well as the Transcontinental. The Commissioners were consulted in the matter, and his instructions were issued with their knowledge.

The points that stand out in connection with this matter are:

The Canadian Northern Railway had their plans covering this location approved first.

The Transcontinental Railway wished to occupy the same ground.

There was room for two tracks, as the construction of the double track proves.

The Commissioners of the Transcontinental Railway built a double track to accommodate the Canadian Northern Railway Company.

There was no necessity for a double track. The Commissioners, before the work started, should have made an arrangement with the Canadian Northern Railway in connection with running rights over the single track, and a further agreement relating to the construction of a second track should the traffic warrant the expenditure (p. 434).

By the construction of the second track, the cost of the railway has been increased by $97,838.00 with no benefit accruing.

STURGEON RIVER BRIDGE.

Mile 119.5, District F.

This structure across the Sturgeon River is located on that stretch of railway between Graham and a point where the Grand Trunk Pacific branch line to Fort William leaves the main line of the Transcontinental Railway. The bridge was constructed to provide for a double track railway at an additional cost of $106,035.00, as outlined in the following letter from Mr. R. F. Uniacke to Mr. Grant under date of October 11th, 1912.

"In reply to your letter of the 5th instant, file 12,188, the cost of construction of the Sturgeon River Bridge, Mile 119.5, District F., for double track over and above the cost of a single track structure was—

Sub-structure	$ 49,557.00
Super-structure	56,478.00
	$106,035.00

"R. F. UNIACKE,
"Bridge Engineer."

Before this work was undertaken the matter was referred to the Grand Trunk Pacific Railway Company, and Mr. B. B. Kelliher, Chief Engineer of the G. T. P. Railway, in his reply to Mr. Uniacke, under date of October 25, 1909, expressed himself as follows:

"I agree with you in preference for a double track single bridge, as per section shown in scheme No. 2 at the present time. I have taken this up with our Vice-President and he is of the opinion that it will be necessary for us to double track the line from Superior Junction to the division yard before many years."

The letter then deals with the question of the number of spans required for the crossing, and concludes as follows:

"As far as the Grand Trunk Pacific is concerned they would like to have a double track bridge built on the original construction, and whether the bridge should be two or three spans, you will be able to determine."

Mr. Gordon Grant, in his report to this Commission, in connection with this bridge, says:

"The reason for this bridge having been constructed for double track is that it was deemed advisable to do so, owing to the fact that this crossing intervenes between Superior Junction and Graham yard, which are about six miles apart, the Grand Trunk Pacific Railway Company maintaining that in the near future traffic between these two points would necessitate a double track and that if the bridge was not built for a double track, it would cost a great deal more money later on than at the time it was first constructed."

We do not agree with Mr. Grant as regards the increased cost of this work if undertaken at a later date after taking into consideration the very high existing contractors' prices and the reasonable rates which would have been paid for concrete, etc., once the railway was in operation, and we find that though this unauthorized expenditure was made with the concurrence of the operating company, it was a needless extravagance by which the country is again the sufferer, not only by being mulcted of the first cost involved, namely, $106,035.00, but by losing forever the interest on this amount for at least seven years.

TRANSCONA TO WINNIPEG.

The subject of the location of the Transcontinental Railway entering the City of Winnipeg has already been dealt with. This line from Transcona to Winnipeg, a distance of about 4.9 miles, has been constructed as a double track railway at an additional cost over and above what a single track would have cost, of $475,819.00, made up as follows:

Bridges—		
	Sub-structure	$121,186.00
	Super-structure	224,633.00
		$365,819.00
Grading—		
	Approximate	100,000.00
		$475,819.00

We cannot find any similar instance of a new railway undertaking to provide for possible future traffic in such a manner.

That the Commissioners of the Transcontinental Railway should undertake to double track any portion of the railway seems to be in direct contravention of the terms of the Act and was a most unwise procedure.

In this case the country suffers to the extent of nearly half a million dollars, while the interest on this amount for the period of seven years is also lost.

It was so obviously to the advantage of the Commissioners as representing the financiers of the railway to curtail such inroads on their capital until the traffic conditions should warrant the expenditure that we can only attribute this unnecessary outlay to a lack of interest in the economical and efficient construction of the railway.

TWO PRICES PAID FOR ONE HANDLING OF MATERIAL.

Instances have occurred on the Transcontinental Railway where the contractors have been paid for excavating material from line cuttings and also paid for the same material as train hauled filling, under Item 74C.

These instances are at locations where the material excavated from the cuttings is not required for the construction of embankments in the immediate vicinity, or rather within a distance which would allow the material to be hauled there without paying the contractor an extra under his overhaul allowance clause which would make the cost of the material to the Commissioners in excess of the contractor's price for train hauled filling.

The argument used to justify this double payment is, that owing to the long haul from the cutting to the point where this material would be required, under ordinary conditions, it would be more economical to waste the material excavated from the cutting by throwing it in the spoil bank and to borrow train fill for the construction of the distant embankment, rather than to pay the contractor one cent a cubic yard for every one hundred feet over five hundred feet the material would be hauled from the cutting to the embankment, and that in paying the contractor for excavating the material and then paying him train hauled filling for putting it in the embankment, the Commissioners are not called upon to pay anything in excess of what this work would cost under any conditions.

It is pointed out, however, that by using temporary grades to surmount these cuttings or by slightly detouring the line and providing for these changes in the original profiles given to the contractors, the material in the cuttings for which a double price was paid might have been removed as train fill, classified, if necessary, and one price only have been paid.

We do not find that the Commission or their engineers took advantage of this economy which is the usual practice in construction on other railways, and we find that their omission to do so involved a waste of approximately $75,284.83.

Statement showing yardage and cost of material excavated from line cuttings and paid for at excavation prices, and also paid for at train fill prices.

		Amount Wasted.
Contract No. 2.		
51,242 cubic yards S.R. @ $1.50	$76,863.00	
87,496 cubic yards L.R. @ .50	43,748.00	
37,863 cubic yards Com. Ex. @ .21	7,142.73	
	$127,753.73	
176,601 cubic yards train fill @ 38c	67,608.38	
	$194,862.11	
If paid for as classified train fill would cost	163,584.40	
	$31,277.71	$31,277.71
Contract No. 3.		
3,417 cubic yards loose R. @ 44c	$1,503.48	
2,593 cubic yards Com. Ex. @ 29c	751.97	
	$2,255.45	
6,010 cubic yards train fill @ 50c	3,005.00	
	$5,260.45	
If paid for as classified train fill would cost	3,517.55	
	$2,102.90	$ 2,102.90
Contract No. 4.		
24,302 cubic yards S.R. @ $1.45	$35,237.90	
11,445 cubic yards L.R. @ .45	5,150.25	
7,029 cubic yards Com. Ex. @ .27	1,897.83	
	$42,285.98	
42,776 cubic yards train fill @ 50c	21,388.00	
	$63,673.98	
If paid for as classified train fill would cost	48,549.76	
	$15,124.22	$15,124.22
Contract No. 6.		
75,920 cu. yds. com. ex. @ 23c	$17,461.60	
75,920 cu. yds train fill @ 40c	30,368.00	
	47,829.60	
If paid for as train fill would cost	30,368.00	
	$17,461.60	$17,461.60
Contract No. 8.		
6,500 cu. yds. loose rock @ 65c	$4,225.00	
5,500 cu. yds. com. ex. @ 27c	1,485.00	
	$5,710.00	
12,000 cu. yds. train fill @ 45c	5,400.00	
	$11,110.00	
If paid for as classified train fill would cost	7,870.00	
	$3,240.00	$3,240.00
Contract No. 16.		
16,000 cu. yds. com. ex. @ 38c	$6,080.00	
16,000 cu. yds. train fill @ 55c	8,800.00	
	$14,880.00	
If paid for as train fill would cost	8,800.00	
	$6,080.00	$6,080.00
Total amount wasted		$75,284.83

HIGH EMBANKMENTS ON PRAIRIE.

When examining the railway, this Commission noticed that the embankments forming the roadbed were five or six feet in height at many places where the railway traverses level country, and upon inquiry it was ascertained that generally these embankments were made high to protect against the accumulation of drifting snow.

It was found from the evidence that the consensus of opinion of the engineers on this railway was that if the base of rail is three feet above the surrounding level country, or the surface of the roadbed was one and a half feet above the surface of the surrounding country, proper snow protection would thus be afforded.

To ascertain the amount of excessive grading which was done to make these excessively high embankments, the Commission caused one of their engineers to make calculations and estimates as to the amount of this additional expenditure, keeping the gradient within maximum limits so as to ensure that the efficiency of these low grades remain unimpaired. The estimate which covers Contracts Nos. 14, 15 and 16, where this feature was most apparent, shows that in this district alone $152,356.00 was so much money wasted.

We are of the opinion, therefore, that $152,356.00 might have been saved on this part of the line and the efficiency of the railway be maintained, if proper economy had been used in the height of embankments.

PILING FOR FOUNDATIONS.

The following list shows the prices submitted by the various contractors under Items No. 10 and 11 of the general specifications:

Contract.	Contractors.	Item 10.	Item 11.
1.	Grand Trunk Pacific	20c	20c
2.	J. W. McManus	20c	20c
3.	Grand Trunk Pacific	22c	22c
4.	Grand Trunk Pacific	20c	20c
5.	W. Kitchen	20c	30c
6.	Lyons & White	25c	15c
7.	M. P. & J. T. Davis	15c	15c
8.	M. P. Davis	30c	15c
9.	M. P. Davis	20c	40c
10.	Macdonell & O'Brien	20c	40c
11.	Grand Trunk Pacific	20c	20c
12.	Macdonell & O'Brien	25c	25c
13.	Macdonell & O'Brien	25c	25c
14.	Grand Trunk Pacific	25c	25c
15.	E. F. & G. E. Fauquier	25c	20c
16.	M. P. Davis	40c	20c
17.	M. P. Davis	40c	20c
18.	E. F. & G. E. Fauquier	20c	20c
19.	O'Brien & McDougall	25c	15c
20.	O'Brien & McDougall	25c	15c
21.	J. D. McArthur	25c	15c

The original specifications on which Contracts Nos. 9, 16 and 21 were awarded, provided for piling for foundations under Clause 153, which reads as follows:

"Piling will be paid for under the headings of 'Piling Delivered' and 'Piling Driven.' 'Piling Delivered' will include piling furnished by the contractor at bridge site as ordered by the Engineers, and will be paid for by the linear foot,

but any lengths in excess of those ordered by the Engineer shall not be paid for.

"'Piling Driven' will be paid for at the specified rate per linear foot in the finished structure which will include all work of any kind in connection therewith."

When the specifications were revised in February, 1907, Clause No. 153 was altered to read as follows:

"Piling will be paid for under the headings of 'Piling Delivered' and 'Piling Driven.' 'Piling Delivered' will include piling furnished by the contractor at bridge site as ordered by the Engineer, and will be paid for by the linear foot, but any lengths in excess of those ordered by the Engineer will not be paid for. 'Pile Driving' will be paid for at the specified rate per net linear foot in the finished structure, and will include all work of any kind in connection therewith, but will not include material in the piles themselves."

Mr. Lumsden's intention as to how the piling should be paid for under the original specifications is expressed in his letter to District Engineer Doucet, of September 17th, 1906, in which he says:

"In case of any misunderstanding in regard to items in schedule as 'Piling Delivered' and 'Piling Driven,' the intention was, in putting it in this way, was that the contractor would be paid under 'Piling Delivered' for the full length of all piles as per Engineer's bill, less the length which had been driven at the date of the estimate, the latter being paid for at the price of 'Piles Driven'."

In November, 1906, the contractors on Contracts 9 and 10, Messrs. M. P. Davis and Macdonell & O'Brien, objected to the piling being returned in the estimates in accordance with Mr. Lumsden's ruling, and claimed that they should receive 20c a foot for the piles delivered, and also 40c a foot for driving them, making a total of 60c a foot for pile in the work.

Although the records do not show how the decision was arrived at, on December 21st, 1909, Mr. Lumsden advised Mr. Doucet:

"It has been decided that in the monthly progress estimates the rate of 20c will be continued and apply on all rates under the specifications up to and including December 31st, proximo, and that thereafter the rate of 40c will govern on Item 11 'Piling driven'" and Mr. Lumsden instructs that the alteration in the estimates on work done in the past, owing to the change in rate, can best be adjusted by the addition of a bulk sum. In his letter to the Commissioners of January 2nd, 1907, reporting the result of the meeting held at Quebec on December 14th, in connection with the train filling prices, he reported on this matter as follows:

"I also allowed the 20c per linear foot for 'Piles Delivered' as well as the 40c per foot for 'Piles Driven' having found in making a comparison of the tenders that had been so computed except where specially mentioned otherwise."

The basis of the contractors' claim on Contracts 9 and 10 was that they should be paid 20c per linear foot for providing pile, and 40c per linear foot for driving the pile, instead of 20c for providing the pile, and 20c for driving this pile, as outlined in Mr. Lumsden's letter of September 17th, 1906, in which he gave his interpretation of the clause governing these items. The only contracts awarded at this date were 9, 10, and 21, and Mr. J. D. McArthur in submitting his prices of 25c and 15c for these items, specified that the latter price applied to driving only.

Mr. Lumsden in his evidence states that he considers that all the tenderers on the McArthur contract contemplated being paid the rate for piling driven and for piling delivered for the piles in the work; that is, two prices, though this is at variance with his original instructions to Mr. Doucet with respect to this matter. A perusal of the list of prices for items 10 and 11 shows that the two contractors, Macdonell & O'Brien and M. P. Davis, in their schedule bids, never submitted a

price for piling driven within 15c of what they claimed they should be paid for this work on Contracts 9 and 10, and their 40c price is in excess of any contractor's figure for this work.

The subcontractors who undertook the piling work for Messrs, Macdonell & O'Brien were paid at the rates from 16 to 17 1-2c for piling delivered, and from 16 to 17½c for piling driven, and if Mr. Lumsden's original intention had been adhered to, the main contractors would have been paid for this work 20c for piling delivered and 20c for piling driven, instead of which the reversal of his first ruling handed to the main contractors an additional 20c per linear foot which the men who did the work never got any advantage from. According to the returns to date, this 20c amounts to, on Contract 9, $11,595.00, and, on Contract 10, $22,300.00, and we feel that, owing to a wrong interpretation of the specifications, and also of the contractors' intentions when tendering, they were conceded this amount of $33,895.00.

DITCHING FOR THE PURPOSE OF DRAINING BORROW PITS.

There are many locations on the Transcontinental Railway in Northern Ontario where costly and unnecessary ditches have been dug to drain the borrow pits adjacent to the railway which have been formed by the excavation of material for the construction of embankments.

The total amount of money which has been expended on this work is $166,920.91.

Of this sum $104,859.60 has been spent on District C.D., and $62,061.31 on District E. Work of this character has been confined to the clay belt of Northern Ontario through which the railway passes easterly and westerly of Cochrane.

This Commission were so impressed with the extent of this ditching and the number and length of drainage channels excavated for the purpose of borrow pit drainage that they requested Mr. Gordon Grant to supply them with the cost of this work, in the following letter dated June 22nd, 1912:

"Gordon Grant, Esq.,
Chief Engineer, N. T. Ry.,
Ottawa.

"Dear Sir:—

"Kindly supply the Commission with a statement showing the ditching done for the sole purpose of draining borrow pits. You need not include those ditches from which the material was used in making embankments, simply those that were constructed proper and simply for the drainage of borrow pits.

"Give the approximate location, yardages and cost.

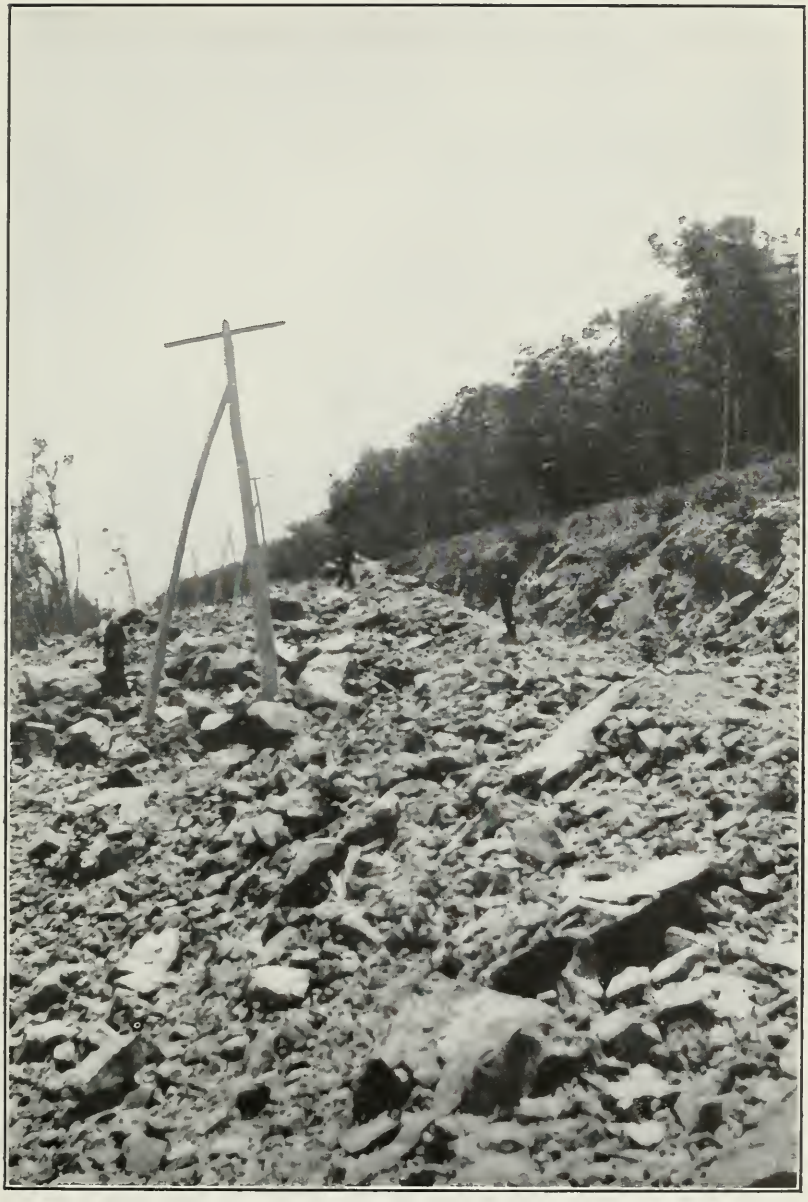
"Yours truly,
"F. P. GUTELIUS."

The figures supplied by Mr Grant in reply to this letter show the total cost of the work to have been $166,920.91 as given above.

There is no doubt that these ditches, so constructed, achieved their object and assisted materially in draining the borrow pits and in keeping them drained of any surface water which otherwise might have accumulated.

This matter is referred to in the specifications under clause No. 29, which reads as follows:

"24. Borrow pits shall be located in such places as will be approved by the Engineer. They shall be regular in width, unless otherwise permit-



District A, Mileage 145.0. Waste on Top of Rock Cutting. Page 70.

District A, Mileage 178.0. West Portal of Tunnel. Page 100.

ted by the Engineer, and, if required, shall be connected with ditches and drained to the nearest water course."

In building a railway through a new country, particularly such a country as that of Northern Ontario, the presence of surface water is very noticeable.

In the construction of the railway, the grading operations and the clearing of the right of way has a tendency to drain the portion of the land through which the road passes, and what appears when first encountered to be wet, marshy land, dries out in process of time to a very appreciable extent, and to undertake to drain all these borrow pits to the extent this work has been undertaken was a waste of time and money, for the reason that time itself would have affected the same results procured by the construction of these ditches, and at any particularly wet locations, if the engineers had properly located their borrow pits so that they would drain themselves to the necessary railway ditch alongside the embankment, no further ditching would have been required. In any event the expenditure of this $166,920.91 for providing drainage in a virgin country before any advantage could be taken from the construction of the railway itself to affect this drainage was an unwarranted extravagance, the responsibility for which rests with the Dist. Division and Resident Engineers.

EXPENSIVE FARM CROSSINGS.

The Transcontinental Railway, about 59 miles west of Quebec, in the County of Champlain, cuts through a farm of 55 acres owned by Mr. Narcisse Delisle.

In their dealings with Mr. Delisle, the Commissioners have purchased from him 5.23 acres of right-of-way at $100.00 per acre, have paid him for damages $277.00, have increased the opening of the culvert, which spans the stream flowing through his farm, to a size which will permit the passage of carts, etc., at an additional cost of $26,235.00, have expended $182.06 in the construction of a level crossing, and have paid Mr. Delisle a further amount of $500 in settlement of his claim for damage.

The engineers who located this portion of the railway provided for a six foot concrete arch culvert to span the stream on Mr. Delisle's farm, at an estimated cost of $7,978.00.

In April, 1906, when railway construction had reached this point, Mr. Delisle lodged a complaint with District Engineer Doucet that "the construction works are causing considerable damage. They are completely closing up a passage to communicate from one side of my property to the other. I should like to have a culvert so as to provide for a carriage crossing and also for my cattle in order that they may have access to waters, otherwise I will have no access to thirty arpents of my land on account of the dump which is being built at present."

On September 8th, 1906, Mr. J. F. Guay, who was Land Agent for the Commissioners on District "B", reported to Mr. Doucet in connection with this matter that the "case is similar to that of 'Honore Perron'. There is a possibility of giving these two parties an acceptable crossing by enlarging the concrete culverts to be built on each of these farms. If this is not done, we will certainly have very heavy damages to pay. I have taken upon myself to ask Mr. Parrot, E. E., at St. Stanislas, not to push the building of these two culverts and wait for further instructions from Mr. McCallum". On the 10th September, 1906, Mr. Gordon Grant, at that date Assistant District Engineer, instructed Division Engineer McCallum to "put in a 14' arch with a 13' clear height inside at stations 3120 and 3147.

"These are to serve as farm crossings."

Station 3120 is on Delisle's farm, and station 3147 on that owned by Honore Perron.

The records of the Bridge Engineer show that the construction of the 14′ concrete arch culvert at Station 3120 was commenced on June 11th, 1907, the culvert being completed on July 31st, at a cost of $25,813.00.

In the meantime, however, although Mr. Delisle had obtained the concession of a 14′ culvert, he was still dissatisfied as the following reports from Land Agent Guay to Mr. Doucet indicate:

"Quebec, May 10th, 1907.

"A. E. Doucet, Esq.,
District Engineer,
Quebec, P.Q.

"Dear Sir:—

"This party, Narcisse Delisle, has his crossing through a large culvert.

"He claims that this will not suit and refuses to make arrangements for any consideration whatever.

"He wants a lawsuit. I will see him a little later.

"Yours truly,
"J. F. GUAY."

"Quebec, May 20th, 1907.

"A. E. Doucet, Esq.,
District Engineer,
Quebec.

"Dear Sir:—

"My assistant called on Mr. Delisle again on Friday in view of making a final effort to arrive at a satisfactory arrangement with him. Mr. Delisle stated again that for no consideration would he accept an arrangement. He is, however, willing to sell the whole farm for the sum of $3,500.00, if agreeable to this, kindly let me know and I will close the bargain.

"Yours truly,
"J. F. GUAY."

The suggestion that the farm be purchased for the sum of $3,500.00 was not entertained, and the construction of the 14′ concrete arch culvert was proceeded with on June 11th, 1907. On June 18th, 1907, Mr. Guay submitted a further report on this matter to Mr. Doucet. The report being as follows:—

"*Report No. 77.*

"A. E. Doucet, Esq.,

"In regard to Narcisse Delisle, Consecutive No. 565, Parish of St. Stanislas; I beg to report as follows in reply to the letter of E. Atkinson, Esq., Law Clerk, dated June 17th.

"The land we take from this party is 651 feet in length by 350 feet in breadth, the area being 5.23 acres.

"This land is situated in a deep gully with steep sides difficult of cultivation and for that reason of much less value than the land of his neighbors who are on the flat.

"On June 27th, 1906, I made an arrangement with him for 2.99 acres for $59.80. At the time he did not realize, or I either, the inconvenience he would be put to by the high bank which is being built across the gully.

"He has been complaining of this all along and when more land was required he obstinately refused making any arrangement unless an undercrossing was built exactly where he had his road.

"To try and give him satisfaction I obtained from you that a large culvert be built in the brook, but the man has been protesting all along that this culvert was an imposition. The distance between the brook and the spot where he wants the crossing built is about 75 or 100 feet.

"I have repeatedly called upon this man and made him verbal offers, the last one being for $100.00 per acre and an additional sum of $200.00 for the damages.

"He refused, and I wrote you May 20th, 1907, that there was no possibility of making an arrangement with him but that he was willing to sell his farm for the sum of $3,500.00.

"This sum is about $1,500 above the full value of this farm. He has it mortgaged almost to its full value. The only difficulty in the way is the crossing which does not suit his fancies.

"The culvert which is being built is 14′ by 14′ and in my estimation it will be better and more convenient than the level crossings you are building for the other farms. There will be times, however, such as heavy rainstorms, when he will not be able to use it unless an elevated board walk is built near the side of the culvert. Such heavy storms are, however, of rare occurrence, and for such a short time that the level crossing which you are giving him in addition will meet this emergency.

"The case of Honore Perron, Consecutive No. 569, is exactly the same and I have experienced no difficulty with him.

"The whole respectfully submitted,

"J. F. GUAY,
"*Land Agent, 'B'.*"

In 1911, owing to the fact that the material forming the embankment would not stand at the regular slope of 1½ to 1, the culvert was extended at a further cost of $8,400.00, making the total cost to that date $34,213.00.

This extension, however, would have been necessary whether the culvert was six feet or fourteen feet in width, but the cost would have been proportionately less, and taking the figures to hand, we find that the final cost of the six feet arch would have been $10,578.00.

If the culvert originally projected had been constructed, and Mr. Delisle's farm purchased at his price, of $3,500.00, the total cost of the whole transaction to the Commission would have been $14,078.

The records, however, show that Mr. Delisle has been paid $1,300.00, the culvert has cost $34,213, which includes the extra expense of concrete paving for roadway, and $182.00 has been spent in grading a level crossing, or a total cost of $35,695.00.

The difference of $21,617.00 is what might have been saved on this one transaction alone had advantage been taken of Mr. Delisle's offer made in May, 1907, before the construction of the arch culvert had been commenced.

At mileage 59.5, a short distance west of Delisle's farm, a similar condition existed.

Here the location engineers again projected a 6′ arch culvert which was increased in size to 14′, at an additional cost of $21,600.00 to serve as an undercrossing for Honore Perron, on whose farm the culvert was located, and while the records do not indicate that any offer was made by Mr. Perron to dispose of his farm, we cannot but feel that an economical purchase might have been made which would have saved the heavy expenditures for the undercrossing. The area of Mr. Perron's farm on the south side of the Transcontinental Railway right-of-way is only seventeen acres, and the amount expended on the enlarging of the culvert would have permitted the purchase of these seventeen acres at a price anywhere up to $1,200 per acre and still effect a saving.

The following is a report from Louis Hurtubise, Resident Engineer to Mr. Doucet in connection with these arches:

"Quebec, 27th November, 1911.

"A. E. Doucet, Esq.,
District Engineer, T.C.R.,
Quebec, P.Q.

"Dear Sir:—

"*Re 13′ by 14′ concrete culverts at St. Stanislas.*

"Replying to your inquiries about these arches, I beg to state as follows:

"The first intention of the locating engineers was to show 6 ft. arches on Narcisse Delisle and Perron's properties; but afterwards a question arose to the effect that these arches would not be big enough on account of the great area of drainage and of the continuous opening up of the contract. At first sight it seems ridiculous to think of large openings, in fact it looks as if a 4′ x 5′ culvert would have been sufficient, as, during the greater part of the summer, very little water was going through these gullies. But my recollection is that during the spring time, when I was Resident Engineer at St. Stanislas, the roadway was flooded by the excess of water caused by the too small size of the openings under public road. I had myself to travel over the road and through the water to reach my destination. Kennedy and McDonald were obliged at one time to make little repairs to the road crossings in order to reach their work situated on the other side of the gullies. It was then that it was decided to build 8 feet and even ten feet arches at those two places.

"But Mr. Delisle and Mr. Perron then came into the discussion which was taking place in regard to the size of the openings on their own properties. Delisle, especially, wrote and protested again and again. I myself suggested to Delisle a level crossing by contouring the hill situated on the north side of his property; but he always refused this, pretending that we could not force him to go round and pass his neighbor's property. Mr. Guay, the right-of-way agent, had several talks with Mr. Delisle, and never could get him to accept my arrangement for a level farm crossing. In fact the construction of such crossing would have been very costly, and the damages claimed by the parties, or the necessary indemnity might have been greater than the difference in cost between a 10-ft. arch and a 13 x 14. Therefore, Mr. Guay suggested that big openings, large enough to allow cattle and carts to go through, be built at these places.

"Mr. Parrot, the former Resident Engineer, received instructions to let the matter stand until I received orders from Mr. McCallum, the then Division Engineer, to build two culverts large enough to provide for an undercrossing on each property. This was done, but later on, as the passage through the culvert became impassable during the springtime, Mr. Delisle was given a level crossing around the hill, which crossing he was to use only in case of emergency. This work, however, proved far more expensive than originally estimated, due to the clayey nature of the ground, and it was therefore abandoned, the intention being to grant a money indemnity.

"Trusting this explanation will prove satisfactory."

"Yours very truly,

"LOUIS HURTUBISE,

"Resident Engineer."

The report would indicate that the increase in the size of the culverts was partly due to the fact that the water way area had been underestimated by the locating engineers. It will be noted, however, that the instructions to increase the size of the arches to fourteen feet were issued in the fall of the year, so that the conditions as regards high water evidently had no bearing upon the change in design.

FENCING THROUGH UNSETTLED COUNTRY.

During the Commission's inspection of the Transcontinental Railway their attention was drawn to the many miles of standard railway fencing which had been built on both sides of the right of way through an unsettled country, much of which is of a wild and rugged nature and more suited for forest conservation than for settlement.

The following statement compiled from figures supplied by Mr. Gordon Grant at the request of the Commission (see letters attached) shows in detail the number of rods and the cost of the fencing constructed through unsettled country along the right of way of the Transcontinental:—

Contract No. 1,	16,142 rods at $1.00	$16,142.00
Contract No. 3,	5,627 rods at 1.20	6,752.40
Contract No. 4,	3,470 rods at 1.15	3,990.50
Contract No. 7,	11,520 rods at 1.10	12,672.00
Contract No. 8,	14,080 rods at 1.15	16,192.00
Contract No. 10,	5,120 rods at 1.10	5,632.00
Total	55,959 rods	$61,380.90

and while it is contended that a portion of this fencing was necessary on account of the proximity of roadways and the fact that settlers were commencing to come into the country, this Commission has no hesitation in condemning this expenditure of $61,380.90 as an unnecessary outlay at the present time.

The fence which has been erected through wood lands, where cultivation is a matter of conjecture will be depreciating in value and efficiency year by year and may require complete renewal before a single rod of it will have served its purpose.

QUEBEC RIGHT OF WAY.

Napoleon Martineau's Case.

Napoleon Martineau, Jr., was in the year 1911 a tenant from year to year at $75.00 per year of a small piece of land 37 by 60 ft., entirely covered by an icehouse, built by himself on Champlain St., Quebec. He had the right to remove the icehouse during the currency of his tenancy. He had been given due notice to quit at the end of the current year, that is on the 30th April, 1912, and if he desired to remove the building he must do so before his tenancy expired, or lose it (p. 551).

In the summer of 1911, a barkeeper in Quebec named O'Neill told Martineau that the Transcontinental through Mr. Raoul R. Bergevin, a Quebec merchant, would give him $1,500 for his lease but he must keep his mouth shut during election, referring to the then pending Dominion elections. Shortly afterwards and before the elections at a meeting with Bergevin and O'Neill he (Martineau) negotiated for a sale of his interest and eventually he sold the building with a small stable to Bergevin for $2,000 reserving the right to keep the property until the 1st May, 1912. (Exhibit No. 32). The transaction was reduced to writing by Notary Couture who was made aware of the circumstances that the lease could not be renewed. Bergevin intimated to Martineau that he was doing him a good turn and wished him to take no part in the approaching elections against the Liberals (p. 587). Bergevin was examined and swore that he bought the icehouse and the small stable next to it to sell to the Transcontinental, which had to pass its road over the land of which Martineau was tenant. Bergevin afterwards made a bargain with Mr. Parent, the Chairman of the Commission, whereby he was paid $3,700 for the expense to which he would be put for removing the icehouse (p. 577 and Exhibit No. 33). Mr. Parent was examined and could give no explanation of this transaction, but asserted that it was entered into in good faith. We can find no justification for this payment to Bergevin. It is quite clear when he bought this icehouse he intended to be recouped with a profit by the Commission, and it is equally clear that the Commission had no use for the icehouse, and could not be compelled had they expropriated the land, which they never did, though they intended to do so, to pay Bergevin any amount for the icehouse, that Bergevin could have no claim against them whatever, certainly not for $3,700, which was nearly three times the value of the building. In order to fully appreciate the case it should be considered with that of Adolphe Chevalier (see page 588).

QUEBEC RIGHT OF WAY.

Adolphe Chevalier's Case.

Adolphe Chevalier, shipwright, Quebec, had a lease of a piece of land in Champlain Market, Quebec, described as Cadastral No. 2525, excepting a piece 37 by 60 let to Napoleon Martineau on which he had a movable skidway cradle sometimes spoken of in the evidence as a "gridiron" or "Bassin de Radoub". His lease was in writing and was for three years ending the 30th April, 1912, which was made by Mr. A. C. Dobell to Chevalier and Mr. Dobell had notified Chevalier that the lease could not be renewed. (See Exhibit No. 34.)

In August, 1911, having learned that Napoleon Martineau had sold his icehouse to R. R. Bergevin he went to see one O'Neill, a barkeeper, who had helped Martineau in his sale and brought him and Bergevin together. Bergevin told him that he had seen the books of the Transcontinental and that his property was valued at $4,000, and that he (Bergevin) was working for the Transcontinental and would give him (Chevalier) $4,000 on condition that Chevalier should help them in the election, which Chevalier agreed to do. Chevalier told Bergevin that his

lease expired on the 30th April, 1912. Bergevin paid $4,000 to Chevalier for the remainder of his term, stipulating in the agreement of sale that Chevalier should have the right without any consideration to occupy the land until the end of the term. (See Exhibit No. 35.)

The skidway or gridiron was not sold to Bergevin, and was removed by Chevalier in the following August. Bergevin in his evidence (p. 592) says that all that he bought from Chevalier was the lease to the 1st May, 1912, allowing Chevalier to occupy it until that date. By deed dated the 10th day of October (see Exhibit No. 36) it was agreed between Bergevin and the Transcontinental that he should be paid, and he was paid $4,250.00 for the damages which would result to him from the demolition of the gridiron or Bassin de Radoub, and the following in his account of the transaction between him and the Transcontinental Railway resulting in its sale:

Q. You bought from Chevalier, according to the deed, all his rights and interests?—A. Yes.

Q. All his rights and interests of every description of a certain land and anse—that is cove—known and designated on the plan and book of reference for Champlain Ward as number 2525, and all the damages resulting from and caused by the expropriation by the Transcontinental Railway, save and excepting the part of the said lot now occupied by Martineau for an icehouse. Is that right? That is what you bought?—A. Yes.

Q. It also recites in your deed that the said rights and interests to the occupation of the land belonging to Adolphe Chevalier is in virtue of a lease made to him by Alfred Curzon Dobell, advocate, as attorney for the Duchess of Bassano. "It is understood," you say also, that the vendor will give possession of the land on the 1st of May next to you, Bergevin, and that he will pay, up to the 1st of May, the taxes and municipal and school rates, and other public contributions affecting the property and the rent to that date, and shall occupy the property until the 1st of May"?—A. Yes.

Q. That is all you bought, what I have said to you, is it not?—A. Yes.

Q. What you sold to the Transcontinental Railway was your damages which would result to you from the demolition—that is the destruction—of the Bassin de Radoub—that is the slip?—A. Yes, everything that is required to repair the boats.

Q. You did not buy that at all?—A. No. He had to unfix this slip in the spring.

Q. But you did not buy the slip?—A. No.

Q. But why did the Transcontinental give you $4,250 for what you had no right to sell to them?—A. Well, I did not sell them any property.

Q. You sold them your damages for removing that Bassin de Radoub?—A. Yes.

Q. You did not own it?—A. But on the 1st of May I had nothing to do with it no more.

Q. And you had nothing to do with that machinery?—A. The slip?

Q. Yes?—A. No, I did not buy the slip.

Q. What did they give you $4,250 for?—A. For what I bought there.

Q. Your deed says that was for damages for removing the slip?—A. Yes.

Q. So that you got $4,250 for nothing?—A. Why?

Q. Because you did not own the slip?—A. No, but I bought the right from the 1st September till the 1st of May; that is what I sold them; I could not have sold them anything that did not belong to me.

Q. But you did not sell them anything?—A. No.

Q. According to your own deed you sold something which you did not own?—A. No, I did not sell them anything which did not belong to me.

Q. Did you own that Bassin de Radoub?—A. No, I owned only the right, as I explained.

Q. You did not own the Bassin de Radoub?—A. No, only the right to the 1st of May.

Q. You knew quite well you did not own that Bassin de Radoub?—A. Yes, I did not buy no property.

Q. Why did you sign a deed, and say in that deed that you owned it? (Deed shown to witness). Now, be honest about this thing. Did you not give that man that money, and then find yourself in trouble after the election, and come down here and get this money back on his deed?—A. No, sir.

Q. Yes, you did; you got it on the 16th October?—A. Yes, but that transaction was made before the election.

Q. The transaction with whom?—A. With the Transcontinental.

Q. With whom did you make it?—A. Mr. Parent.

Q. He is a lawyer?—A. Yes.

Q. And a very distinguished lawyer?—A. I had to pass that before the Notary Taschereau.

Q. And you made the bargain with Mr. Parent himself?—A. Yes.

Q. And he agreed to give you $4,250 of Transcontinental money for destroying the Bassin de Radoub?—A. Yes.

Q. And you knew you did not own it?—A. For the right I had there.

Q. For the Bassin de Radoub?—A. No, they say for the demolition of it.

Q. What was your bargain with Mr. Parent?—A. $4,250, the way the deed says there.

Q. For the demolition of the Bassin de Radoub?—A. No.

Q. Tell me the bargain: what did you say to Mr. Parent?—A. I told him "I will sell what I have there made with Chevalier, and that is all"; I produced my contract with Chevalier, and that was the arrangement. I would get $4,250 for this thing.

Q. Did he read it?—A. Yes, and the notary too.

Q. Did Mr. Parent go to the Notary with you?—A. No, Mr. Tremblay went, not before me, but I gave them the papers and they went to the notary with it.

Q. But Mr. Parent gave Tremblay the instructions?—A. Yes.

Q. In your presence?—A. Yes, to send the papers to Taschereau.

Q. Did Mr. Parent give Tremblay your deed from Chevalier?—A. Yes, he must have given it to him, because he had it in his hand.

Q. When did you make that bargain with you and Mr. Parent?—A. I cannot tell you, but it was a week or so before the election.

Q. And he put the transaction through after the election and gave you this money?—A. No, this was with the notary, just the next day after I made the transaction with him.

Q. With whom, Mr. Parent?—A. Yes.

The agreement between Bergevin and the Transcontinental is in part as follows: "Considering that it is necessary for the Transcontinental Railway to demolish, for purposes of their line of railway, the graving-dock belonging to the said Bergevin, situated on Lot 2525, and considering that Bergevin is ready, in consideration of a certain indemnity, to give up the said graving-dock, therefore, Bergevin accepts $4,250 in full and final discharge of all damages resulting to

him from the demolition of the said graving-dock". It will be seen that the form of the agreement between the Transcontinental and Bergevin was for the sale of the graving-dock, but it is clear both from the deed from Chevalier to Bergevin and from Bergevin's evidence that Bergevin did not own the graving-dock or skidway. Indeed as Chevalier says he removed it in the summer of 1912 to Saint-Laurent (p. 592).

Mr. Parent whose evidence on this point appears at p. 639 and following pages says that he understood that Chevalier could renew his lease; that he thinks the graving-dock was used by the Commission during the whole summer; that he himself put through the transaction, and although he put through the transaction he relied on Mr. Tremblay, because Mr. Tremblay, the Secretary to the Transcontinental land valuators at Quebec, had certified to its correctness. Mr. Tremblay whom Mr. Parent declared to be a most conscientious man was examined, and he stated that the agreements were made between the Chairman and the owners, and that his certifying vouchers correct only meant that the vouchers corresponded with the amount agreed on as the purchase money. When this transaction was made Mr. Parent had in his possession the agreement between Bergevin and Chevalier which clearly showed that Bergevin received no value from Chevalier for the $4,000 which he (Bergevin) paid to Chevalier, and had nothing to sell to the Commission, and Parent must have known that Bergevin had nothing to sell to the Commission.

We find that the agreement of sale between Bergevin and the Commission was designedly drawn in form to make it appear that Bergevin was being paid for the demolition of the skidway or graving-dock, while all parties were quite aware that such was not the fact.

The Chairman of the Commission is alone responsible for this misapplication of $4,250.

CROSSING OF CREEK A'SHEA AND RIVER DU SUD.

At Creek A'Shea, on Residency No. 29, District B, a 30-foot concrete arch has been constructed, which together with the embankment at this point has cost $187,478.94.

Mr. R. F. Uniacke, Engineer of Bridges, N.T.R., has supplied the Commission with figures showing that a steel viaduct, which would take the place of the concrete arch and fill, might have been erected for $103,000.00.

At River du Sud, Residency 11, District B, a 40-foot concrete arch and fill have been made, at a total cost of $246,551.03, and Mr. Uniacke's figures for a steel viaduct at this point are $96,910.00.

As will be seen, if these two streams had been crossed by means of steel viaducts, a saving of $234,000.00 would have been effected. These are mountain streams which in time of extraordinary flood might exceed the capacity of the arches, whereas steel viaducts would have given unlimited capacity for large volumes of water, so that on this account the use of these arches may prove an engineering failure, and we criticise this method of crossing these streams both on account of the limiting capacity of the arches, and on account of their excessive cost.

TRANSCONA SHOPS.

Are the shops at Transcona to be regarded as a portion of the Eastern Division within the intent and meaning of the Agreement of July 29th, 1903, and of February 18th, 1904, and Acts confirming same?

A general description of the shops is appended hereto and shows that they are designed and furnished for building and repairing railway equipment generally and are of a capacity which suggests that they are expected to construct and repair for the Western and Eastern Divisions of the railway, and cost, including equipment, about $4,500,000.00.

The Government contracted to build "a line of railway" between Moncton and Winnipeg, and the company undertook to maintain the railway and the rolling stock at its, the Company's, own sole cost for fifty years, the term of the lease.

It is submitted that the "line of railway" which the Government had agreed to supply may be fairly defined as that part of the Company's undertaking on which the company operates its rolling stock, and would reasonably include permanent way, siding and railway yards, stations, freight sheds, and roundhouses along the line.

In this case the "line of railway" does not include terminals because they are spoken of as being apart from the railway. For example, in clause 15 "expenditure for right of way and other lands required for the purposes of the railway and for terminal facilities" is spoken of, and it would not include telegraph and telephone lines, because they are also treated separately.

In other words, the Government is to supply the permanent way, that is the facilities for using the company's rolling stock, but it is not to supply the facilities for repairing, maintaining, or replacing that rolling stock or the permanent way, and clearly the shops and machinery are facilities for repairing or replacing rolling stock, and are of no use to the Company in the operation of the rolling stock, if the rolling stock is in good repair, which is the condition which the Company has agreed at its own cost to keep the rolling stock.

Shops are not part of a line of railway. There are many railways which have none. For example, lines which were built and leased like this is to be to other companies.

Machinery is certainly no part of a line of railway. It is not even equipment of the railway, as is the furniture of a railway station for example. It is the equipment of a building, which the railway company may or may not for economical reasons deem it good business to acquire or not to acquire, so that neither are necessary for the operation of the road.

Premising the above conclusions, it is now proposed to point out from the agreement and statute, the grounds on which they are founded. In this statement "clauses" refers to the agreements, schedule to the Acts, 1903 and 1904, made between the Government and Sir Charles Rivers Wilson, et al., acting for the Railway Company.

This Commission asserts:

(a) There are no words in the agreement imposing on the Commission any liability to build shops or to furnish them with machinery, but, on the contrary, the Company have agreed to equip the railway with rolling stock and to keep the railway and rolling stock in repair, and to make all renewals at its own expense; that agreement involves the supply, by the Company, of shops and machinery for the building and repair of rolling stock unless the Company contracts that work out to somebody else.

(b) The Government did not agree to build and fully equip this line of railway with everything required to operate it, excepting rolling stock.

(c) The Company agreed to equip the railway with rolling stock and to keep it and the rolling stock in repair at its sole expense. Not only does this agreement impose no liability on the Government in this regard, but it can be gathered from the contracts with certainty that the Company has undertaken this obligation.

(d) There are words used in the agreement which clearly indicate that the company is to supply these shops and machinery. If it was intended that the Government should supply these shops and machinery, the agreement by the Company to repair its rolling stock would have stated that the same was to be repaired with the machinery to be supplied by the Government.

(e) Shops and machinery may be equipment of the undertaking of a railway company, but are not equipment of a "line of railway".

(f) It is a clearly established rule of law that where in an agreement certain things are enumerated to be done, that all others are excluded from the agreement unless additional words are used showing that it was intended to include something else and then only such are included as are of the same class as are enumerated.

We will now deal with each of the above propositions separately:

(a) There are no words in the agreement imposing on the Commission any liability to build shops or to furnish them with machinery, but on the contrary the company having agreed to equip the railway with rolling stock and to keep the railway and rolling stock in repair and to make all renewals at its own expense, that agreement involves the supply by the Company of shops and machinery for the building and repair of rolling stock unless the Company contracts that work out to somebody else.

Clause 2. That a through "line of railway" of the gauge of 4 feet 8½ inches, comprising two divisions to be built, called the Eastern and the Western Division, respectively, shall be constructed in the manner hereinafter mentioned between the City of Moncton and the Pacific Ocean. The Eastern Division shall comprise that portion of the railway to be constructed from Moncton to Winnipeg.

This clause proceeds to describe the location of the railway and stops. The declaration is that a line of railway of the gauge of 4 feet 8½ inches, to be called the Eastern Division, shall be constructed as hereinafter mentioned. So far nothing more is described than the roadbed and steel.

Clause 5. "The said Eastern Division shall be constructed by and at the expense of the Government upon such location and according to such plans and specifications as it shall determine, having due regard to directness, easy gradients, and favourable curves." In this clause, the Government agree to construct the Eastern Division; up to this time we have no wider description than is contained in Clause 2.

Clause 15. "The expression 'cost of construction' in the case of the Eastern Division, shall mean and include all the cost of material, supplies, wages, services, and transportation required for or entering into the construction of the said Eastern Division, and all expenditure for right-of-way and other lands required for the purposes of the railway and for the terminal facilities, accommodation works and damages and compensation for injuries to lands, and for accidents and casualties; cost of engineering, maintenance, replacement of works and material during construction, and superintendence, book-keeping, legal expenses, and general cost and expenses, occasioned by the construction of the said Division, whether of the same kind as, or differing in kind, from the classes of expenditure specially mentioned, including interest upon the money expended; the interest upon such outlay in each year shall be capitalized at the end of such year, and interest charged thereon at three per cent per annum, until the completion of the work, and until the lessees enter into possession under the terms of the said lease, and for the purposes of this agreement, the amount of such cost of construction including the principal and all additions for interest, to be ascertained in manner aforesaid, shall on completion be finally determined and settled by the Government upon the report of such auditor, accountants, or other officers, as may be appointed by the Government for that purpose."

This clause deals with the expenditure to be made by the Government, and in this must be found all heads of expenditure on which the Government may charge interest against the Company, and it is quite clear that if the Government made any expenditure which does not come within the "cost of construction" as defined by this clause, the Government cannot charge interest thereon against the railway, because it is agreed that the rents shall be three per cent per annum on the "cost of construction" as defined by this clause.

Clause 15 covers (1) "material, supplies, wages, and transportation required for or entering into the construction of the said Eastern Division". So far there is no wider definition of the Eastern Division than in Clause 2.

(2) "All expenditure for right of way, and other lands, required for the purposes of the railway, and for terminal facilities". This deals with land alone, but throws light on the question because it indicates clearly that the expression "lands required for right of way and other purposes" does not include lands required for terminal facilities, showing that even they were additional lands. So if the Government were bound to find land for shops, it would have been so stated, as was done in the case of terminal facilities. "Other purposes" covers lands for stations, freight sheds, sidings, turnouts, etc.

(3) "Accommodation works". This is a legal expression, well understood to mean works for the accommodation of landowners. The following quotation from Sweet's Law Dictionary, page 8, shows what it means:

> "Where a railway company takes land compulsorily it is bound under the 68th section of the Railway Clauses Act of 1845 to construct all gates, bridges, roads, fences, etc., necessary to make good any interruption caused by the railway passing through the land. These are called accommodation works."

The words are found in the English Railway Clauses Act, Chapter 20 of the Statutes of 1845, sections Nos. 68, 71, 72, and 73.

This and the expressions in the remainder of the clause could not in any way refer to shops and machinery and so they will not be further discussed.

In the above clauses, we have all the contract which imposes liability on the Government, and there is not one word that even remotely implies that the Government is to be put to the cost of shops or machinery or tools of any kind.

Surely it cannot be easily argued that an expenditure of many millions for shops, machinery and tools was contemplated by either party to be made by the Government, and no mention made of it.

(b) The Government did not agree to build and fully equip this line of railway with everything required to operate it except rolling stock.

It may be argued that the railway is to be complete in every particular except as to rolling stock, an error fallen into by not carefully considering the terms of the contract.

Where the Eastern Division is spoken of as "when completed" (clause 20), and when the words "after completion" (clause 16), and where the words "pending the completion of the Eastern Division" are used in Clause 3 of the second agreement, Schedule to Chapter 24 of the Statutes of 1904, the meaning is that when the Government has completed the work it has undertaken by the agreement to perform and no more.

This appears absolutely clear from the fact that the Government is not required to provide telegraph and telephone lines. No railway is complete without these. There is quite as much reason for arguing that the Government is bound by the agreement to provide telegraph and telephone lines as there is that it is to provide shops and machinery and tools.

The agreement is clear on this point at least because by section 27 of the Statutes of 1903, the Commissioners are authorized (but not required) if the Governor-in-Council consents, to build as part of the Eastern Division telegraph and telephone lines. This provision would have been unnecessary if the agreement covered it.

It must not be forgotten that the agreement and statutes were drawn at the same time, and because it is mentioned in the statutes it follows that the parties did not consider that the agreement covered telegraph or telephone lines, or, in other words, a completed railway, but thought that the agreement only covered what was mentioned, and recognized that unless authorized by the statute the Government would have no power under that agreement to build these telegraph and telephone lines, and it is submitted that each party realized that at Winnipeg the Grand Trunk Pacific would, for its Western Division, naturally have its own shops, and that there was no necessity to even authorize the Government to build the Transcona Shops.

(c) The Company agreed to equip the railway with rolling stock and to keep it and the rolling stock in repair at its sole expense. Not only does this agreement impose no liability on the Government in this regard, but it can be gathered from the contract with certainty that the Company has undertaken this obligation.

Clause 22. "The Company shall equip both divisions of the said line of railway with modern and complete rolling stock, suitable and amply sufficient for efficient operation and the handling of all classes of traffic to the satisfaction of the Government, and the first equipment for the completed road shall be of the value of at least $20,000,000.00, of which not less than $5,000,000.00 worth shall be supplied for the operation of the Eastern Division of the said railway, and the said $5,000,000.00 worth of rolling stock together with all renewals thereof, and additions thereto, shall be marked as assigned to the said Eastern Division, and shall be held to be and form part of the equipment of the Eastern Division of the railway, during the said period of fifty years, and shall be used as the equipment appertaining thereto according to the ordinary practice of railways during the said period of fifty years."

Here it is clearly provided that the Company shall supply the rolling stock for the railway.

Clause 23. "The lease of the said Eastern Division shall contain all necessary and proper provisions required by the Government for securing during the entire term of the said lease the efficient maintenance and operation of the said division, including all repairs and renewals and the maintenance and renewals of its rolling stock and equipment, so as to keep the said division in all respects up to the standard of modern and efficient railway practice and operation, as the same shall be advanced and improved from time to time, during the whole term of said lease, it being the intention of this agreement that the said lease shall provide in all respects for the upkeeping of the said Eastern Division, and of the equipment thereof (otherwise than by expenditure upon construction account, under paragraph 16 hereof), to the satisfaction of the Government, at the expense of the Company, after the same shall be completed and handed over by the Government to the Company for operation". The Company here agree to enter into a lease which shall provide that it shall repair and renew and maintain rolling stock and all other equipment of the road, and shall keep up the road at its own expense.

Now if the Government is to provide shops, machinery and tools for the repair and renewal of rolling stock, it means that the Government must provide not only repair shops but also shops and machinery and tools for building engines and cars, and because for the first seven years of the lease no interest is to be charged "on the cost of construction", the Government is actually to pay part of the cost of

renewals and repairs which contradicts and nullifies the agreement in that respect. These shops, costing several millions, that contribution by the Government would amount in seven years to more than a million dollars.

Clause 6. "The Company agrees to construct, maintain and operate the said Western Division, and to take a lease of, maintain and operate the said Eastern Division, upon the terms and conditions and in the manner hereinafter set forth."

By this and Clause 23, the Company agrees to maintain and keep in repair the Eastern Division. Now if the Government is required to provide shops and machinery and tools to repair and build renewals of rolling stock, why is it not bound to provide all the appliances and machinery to be used by the Railway Company in keeping up the road, generally? It is as reasonable to infer one as the other from this agreement. There is as much provision made in the agreement for one as the other, and that is none.

(d) There are words used in the agreement which clearly indicate that the Company is to supply these shops and machinery. If it was intended that the Government should supply these shops and machinery, the agreement by the Company to repair its rolling stock would have stated that the same was to be repaired with the machinery to be supplied by the Government.

Clause 14, which defines working expenditure, includes in it "property leased to or held by the Company in respect of the said Eastern Division." Apart from the rent of any other leased line "also all rent charges or interest on the purchase money of lands belonging to the Company, purchased for the use of the said Eastern Division."

If the Government must furnish the whole undertaking, excepting rolling stock, why should clause 14 deal with property leased to or lands belonging to the Company for the Eastern Division? It cannot be successfully contended by the Company that the lands thus spoken of might be leased, purchased, or used by them for some collateral business, because clause 14 is limited to property held in respect of the Eastern Division, and to lands purchased for the use of the Eastern Division, and if it were not for the Eastern Division, there would be no use for including them in the agreements.

By Section 14 of the Statute, the Governor-in-Council may set apart for the purposes of the Eastern Division so much of any public lands of Canada as is shown in the report of the Chief Engineer to be required for the roadbed thereof, or for the convenience or necessary sidings, yards, stations, and other purposes for use in connection therewith. Notice that there is no mention made of shops or land for shops. These words describe the railway simply as it lies between Moncton and Winnipeg.

Now compare this section with clause 45 of the Agreement, where the Government agrees to grant public lands for the right of way of the Western Division, and for all stations, station grounds, workshops, buildings, yards, and appurtenances required for the construction and the working thereof. Can it be reasonably argued that the Government has not agreed in respect of the Western Division to supply land for more purposes than it does by section 14 of the Act in respect to the Eastern Division. The railway owned the Western Division and must work it and must renew and repair its rolling stock, and will require workshops for that purpose, and therefore workshops are mentioned in Clause 45. The Company agrees at its own cost to supply rolling stock for the Eastern Division and to keep it up and renew it in its own workshops, and therefore the Government by section 14 of the Statute does not agree to supply lands for workshops in the Eastern Division. The fact that shops are not mentioned, in the Statute or in the Agreements, where they refer to the Eastern Division and are mentioned in connection

with the Western Division is very significant of what the intention of the parties was. The agreement to supply land for workshops or for working the Western Division means something more than is agreed in Section 14, respecting the Eastern Division.

(e) Shops and machinery may be equipment of the undertaking of a railway company, but are not equipment of a line of railway.

The word "undertaking" covers the whole of the corporation facilities for all its activities, whether those are or are not used for one or more than one business, for example, the undertaking of the C. P. R. includes all its hotels, but in speaking of the line of railway one would not be understood to include the hotels, so that the workshops and machinery, although they are part of the undertaking, once they are acquired by the Company, are not part of the line of railway. The facilities to be supplied by the Government must necessarily come under and be legitimately included in the line of railway, these being the words used in the statute.

The Government contemplated spending on the construction of this 1,800 miles of railway, less than $60,000,000.00. Mr. Fielding declared that for the building of this class of railway in adding twenty-five per cent to Mr. Collingwood Schreiber's estimate, bringing the cost to $31,250.00 per mile from Quebec to Moncton, and to $35,000.00 per mile from Quebec to Winnipeg, he had received assurance that his estimate was a liberal one, and that the railway could be constructed well within these figures. Now if this were the contemplated expenditure, how can it be said that the parties ever dreamed of spending the huge amount of at least $4,000,000.00 on shops. Surely both the Railway Company and the Government, for this expenditure, would have at least mentioned this in the Statute or in the agreement.

Again we refer to the telegraph and telephone. The Government would not bind itself, unconditionally, to erect this plant, and the leaving of it optional with the Government to make this very much smaller expenditure for facilities which were absolutely necessary for working the line should be conclusive evidence in the absence of any provision in the agreement to the contrary, that the Government was not bound to make this expenditure on shops.

It may be argued that the fact that the Commissioners built the Transcona shops, that it was always intended that the Government should undertake this work.

What the Commissioners did afterwards cannot be used as evidence of what the agreement meant. The Commissioners apparently did not consider the question at all, and even if they did the fact that the Commissioners built the shops does not compel the Government to lease them to the Railway Company as part of the Eastern Division, and there is no evidence that the Government intended to lease them as part of the Eastern Division. If the Government had contemplated building these great shops at Transcona, at the cost to the public of millions of dollars, would there not have been a clause in the agreement limiting the use which the Railway Company might make of these shops to the wants of the Eastern Division, which has not been done, or would it not have stipulated that if the shops were used for the benefit of the Western Division an additional rent should be paid.

It is inconceivable that the Government would hand over this great property to be used by the railway for any purposes which it chose without having made provision for extra rent if used for any other purposes than those of the Transcontinental.

As has been said, telegraph and telephone lines are not part of a line of railway, but are, like rolling stock, facilities for operating a line of railway, so because the railway company had undertaken to operate the railway, it would have been to the expense of providing these facilities had not the Government, by a special clause in the statute, given the Commissioners power, with the consent of the Governor in Council, to provide them. In other words, every facility for operating the railway, and every facility for keeping up the operating facilities, are under the contract to be supplied by the railway.

We think that as this is our opinion, we should reproduce the opinion of Mr. E. L. Newcombe, K.C., Deputy Minister of Justice, in which he disagrees with the above views and the same is herewith attached.

March 5th, 1912.

1374—1911.

Sir,—

I have the honour by direction to write to you in reply to the letter of the 4th December last addressed by the Minister of your Department to the Minister of Justice. Enclosed with that letter was one dated 1st December last from Mr. R. W. Leonard, the Chairman of the Transcontinental Railway Commission, raising certain questions with reference to the construction of shops and provision of equipment for the Railway.

Mr. Leonard says in the conclusion of his letter; "I require to have definite instructions from the Government as to their intention in framing the contract". I do not suppose it is possible to ascertain the intention of the late Government in framing the contract nor do I think it would be of much use if it could be known. In cases of doubt the contract has to be interpreted by the parties to it, by agreement if possible and if not by the Courts.

There are several points arising on Mr. Leonard's letter which I shall have to discuss but in large part the questions involved are, I think, for the decision of railway experts rather than lawyers.

The Government contracted to construct the Eastern Division of the National Transcontinental Railway extending from Moncton to Winnipeg. I should suppose that it was impossible to complete the construction of a railway of that length without providing shops of some kind. I will presently consider further the question of what shops should be provided but for the moment will suppose that it is only a question of repair shops. It seems to be a question for railway men to say whether repair shops are or are not a necessity for such railway.

If they are a necessary part of the Railway they have to be built either by the Government or by the Company which is to operate the Railway. If as Mr. Leonard says there is nothing express in the Act or the Agreement showing that the Government contemplated constructing shops, there is certainly less to show that the Company intended to do so.

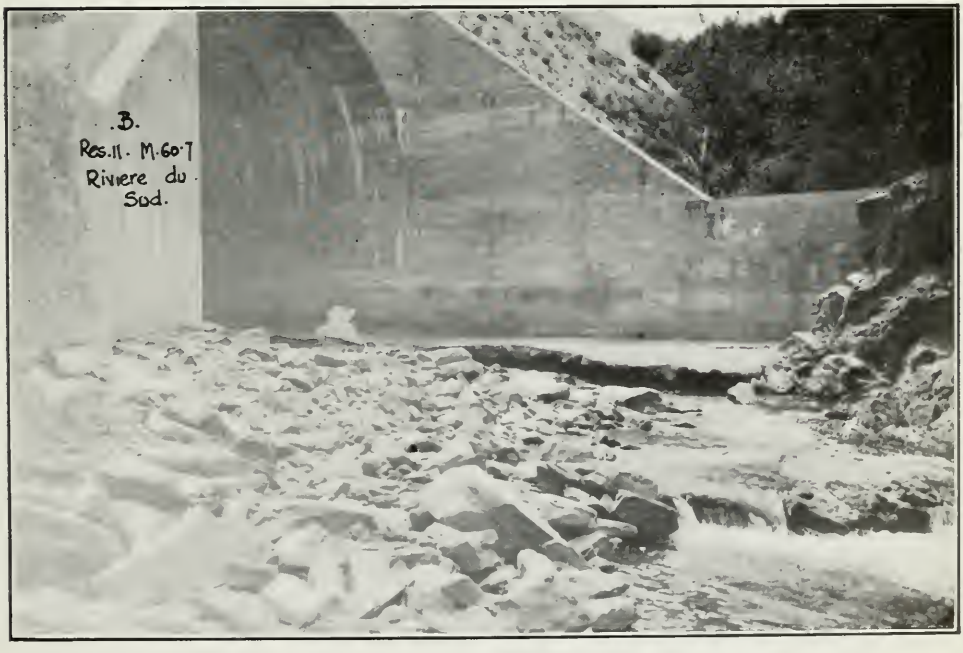
Let me refer particularly to certain provisions of the Agreement. Clause 2 provides for the construction of a through line of railway between the City of Moncton and the navigable waters of the Pacific Ocean, and Clauses 5 and 16 that the Company shall construct, maintain and operate the Western Division, that the Government shall construct the Eastern Division and the Company shall maintain and operate it. These three terms construction, maintenance and operation include the whole of the provisions made for the entire railway. Working expenditure as applied to the Eastern Division is defined by clause 14 and includes "all expenses of maintenance"; and, after mentioning many expenses of operation and special expenses, the clause concludes with "all such charges, if any, not above otherwise specified as in all cases of English railway companies are usually carried to the debit of revenue as distinguished from capital account". The cost of construction as defined in Clause 15 includes "accommodation works". By clause 18 the cost of construction of the Western Division shall include the like classes of expenditure as in the case of the Eastern Division.

If the construction of shops is not construction of the railway within the meaning of Clause 5 of the Agreement neither is it within Clause 6. But if this is not construction it cannot be either maintenance or operation and it does not fall within any of the expenses detailed as working expenditure, yet as I have said before, I apprehend it is not possible for even one Division and still less the whole Railway to be complete without repair shops.

District F, Residency **21**, Mileage **24.6**. Waste. Page **60**.

District F, Residency **31**. Rock Cutting at Mileage **39.0**. Note width of excavation where men are Standing. Page **70**.

District A, Mileage 45.0. Portion of Coal Creek Fill. Page 92.



District B, Residency 11. Mileage 60.7. 40 Foot Concrete Arch over Riviere du Sud. Page 120.

Clause 20 provides that when completed the Eastern Division shall be leased to and operated by the Company. I think this must mean that it must be in a condition to be operated so far as concerns all work of construction reasonably necessary.

Upon the question of equipment it is to be noticed that there is one important item of equipment specially mentioned and provided to be furnished by the Company, the "rolling stock suitable and amply sufficient for efficient operation".

Again Clause 23 stipulates that the lease shall contain provisions for maintenance of the Eastern Division including all repairs and renewals and the maintenance and renewal of its rolling stock and equipment.

That we have the Government undertaking to complete the Eastern Division and the Company agreeing to operate it, a special provision for the Company to furnish one particular part of the equipment, and a covenant to be inserted in the lease for the maintenance of the equipment.

Finally I would call attention to the words in Clause 23 "it being the intention of this Agreement that the said Lease shall provide in all respects for the upkeeping of the said Eastern Division and of the equipment thereof otherwise than etc., at the expense of the Company after the same shall be completed for operation". The exception in the above is the cost that may be incurred under Clause 16, after the Company is in possession for the improvement of the Division, the replacement of structures by others more modern or otherwise upon capital account for betterments and not being working expenditures.

It is to be noted on the other hand that Section 27 of the Act specially authorized the construction by the Commission of such telegraph lines as are reasonably required for the operation of the Eastern Division. It must have been assumed therefore that the telegraph lines were not a necessary part of the construction, and possibly they are not essential to the equipment of a railway, but I should doubt if the latter contention could be maintained.

I have said that the necessity of providing shops at all might be one for the decision of railway men, though it seemed reasonably clear that some such accommodation would be necessary. Again, the question of what shops are necessary may involve technical knowledge, but there are some sorts which it would seem cannot be necessary. I cannot understand that it can be necessary for a railway company, in the words of the General Manager of the Company, "to have capacity to do a certain amount of building new locomotives, freight cars and passenger cars." That I would apprehend is no more part of the business of a railway company than would be the purchase and working of a coal mine to obtain their own supplies of coal instead of purchasing them.

I point out this particular class of shops which it seems to me cannot be considered necessary for the completed railway, but I think it will be for the Commissioners to decide what shops are necessary in view of my previous remarks as to the necessity of the Government completing the Eastern Division of the railway so that it can be operated by the Company when leased.

As to the location of the shops that so far as the Winnipeg site is concerned appears to be settled beyond possibility of alteration, but as to the Quebec or any other site I apprehend it is still open to the Commissioners to determine any and what shops are required at these places.

With reference to the Winnipeg site, the Company say, and I think not unreasonably, that inasmuch as the Commission decided to buy land for terminals east of Winnipeg and proceeded without consultation with them and as the shops will be built on the land of the Eastern Division, they do not contemplate contributing to their cost. I think they are right in so far as any advantage accrues to them from the fact of the shops being at the terminus of the Eastern Division, which is also the terminus of the Western Division. I do not think they are entitled to have the shops constructed at an increased cost in order to meet the requirements of the Western Division.

The facts as regards the works carried out at Transcona are not altogether clear to me. On March 14th, 1908, the Secretary of the Commission wrote to Mr. Morse: "The Commissioners will arrange for the preparation of plans of such shops as will meet the requirements of the Eastern Division and complete the terminal facilities at Winnipeg. Estimates and plans were prepared and approved by the Commission and the Company, presumably to fulfil this purpose, the cost not to exceed $1,500,000. An Order-in-Council was passed on the 27th May, 1908, authorizing the invitation of tenders for the work.

The sum of $1,500,000 would appear to have been spent without any reference to the purposes for which the expenditure was authorized, the whole sum, according to Mr. Leonard (page 7), having been used for locomotive shops. Mr. Leonard makes no mention of any further authority having been given in connection with these works, but says (page 10): "In 1911, apparently as the result of verbal negotiations, it was decided to increase the plant at Transcona until the

Expenditure to date has been.....	$2,080,949.87
The estimated expenditure to complete is.....	1,727,616.00
Making a total sum of.....	$3,809,565.37

I am, however, informed by the Law Clerk of the Commission that Orders-in-Council were passed sanctioning the contracts for the work done.

I have no information as to the reasons for the departure from the original estimates and plans for the greatly increased expenditure. If these are for the benefit of the Western Division, I do not think they are proper charges to be included in the cost of the Eastern Division. Mr. Leonard suggests that the verbal negotiations in 1911 "included a bargain regarding expenditures in the city of Quebec". I am unable to see what place there is for any such bargain under the contract.

Mr. Leonard concluding his letter says, "I require to have definite instructions from the Government as to what items of machinery, if any, shall be supplied by the Commission for the lines east of Winnipeg and for the lines west of that point". It follows from what I have before said that so far as the lines east of Winnipeg are concerned I think such machinery must be supplied, as is necessary to make the railway ready for operation. I am disposed to think, moreover, that the construction and completion of the Eastern Division, for which the Government is responsible, would not involve expenditures for machinery, works or services not included in "cost of construction", as defined by Clause 15 of the agreement.

There can, I think, be no doubt that no machinery should be supplied for the lines west of Winnipeg.

I have dealt with this matter at length, not only because of its importance and the large sums of money involved, but also because Mr. Leonard has set forth his views very fully and seems to have arrived at conclusions with which I am not able to entirely agree.

I return Mr. Leonard's letter.

I have the honour to be,

Sir,

Your obedient servant,

E. L. NEWCOMBE.

DESCRIPTION OF THE TRANSCONA SHOPS.

LOCOMOTIVE SHOPS.

The Transcona Shops of the Transcontinental Railway are equipped with 147 machines, and are capable of handling repairs to the extent of three hundred locomotives per year.

This shop also, with its present equipment, could build fifty locomotives per year. This, however, would decrease the output of repairs from three hundred locomotives to approximately two hundred and twenty-five, but with an additional expenditure of about $75,000.00 the output of new engines could be increased to one hundred and fifty.

Assuming that the requirements of the Eastern Division of the road would be 300 engines, the output of the shops would be 25 engines per month, which would mean that the entire equipment could go through the shops once a year. The output of the proposed Quebec shops being 150 engines per year, would mean 450 engines could be repaired at these two points in one year. This shows that the Transcona shops would be capable of doing 100 per cent more than is required of them for the Eastern portion of the road, and this when the traffic has become systematized and on the assumption that the business done be 75 per cent of that done by the C. P. R.

For the next five years the Transcona and Quebec Shops and the Terminal Machine shops at the roundhouses, including Rivers, Man., on the western section, could fully take care of repairs for the entire system east and west.

PASSENGER AND FREIGHT CAR SHOPS.

Practically the same conditions prevail in these Departments as exist in the Locomotive Department, as these shops are designed to take care of an equipment proportionate to the locomotive requirements.

GREY IRON AND BRASS FOUNDRY.

This Shop is thoroughly equipped and has 26 machines and appliances, and is capable of casting any spare part of an engine from a cylinder with saddle complete to the smallest item required on a locomotive or car.

The Brass Foundry in the same building is also equipped for casting anything required in connection with a locomotive or car.

FORGE SHOP.

This Shop is thoroughly equipped and has 47 machines and appliances, including a 5,000 lb. hammer, which, with the large furnace, is capable of locomotive frame making, and these are also able to handle scrap and work it up into good quality blooms from which these frames are made.

BOILER SHOP.

The Boiler Shop is equipped with 35 machines of the latest and most modern type, and is practically second to none on the American continent, having larger and more up-to-date machines than the C. P. R. Angus shops have.

FROG AND TRACK SHOP.

This Shop contains 25 machines and with the addition of a setting-out shed and one more Frog and Switch Planer, would be sufficiently large enough to take care of all track material, both east and west.

CARPENTER AND PATTERN SHOP.

There are 25 machines in this Shop, and it is capable of making all the patterns required in connection with the building and repairing of locomotives and cars.

This shop is also equipped with machinery for repairs to engine cabs or any work required on engines.

POWER HOUSE.

The power house is capable of developing 3,400 H.P., which is sufficient for the Locomotive and Car shops, including lighting for whole plant.

STORES DEPARTMENT.

The Stores Department is adequate for the handling and storage of material for locomotives and cars, and provision has been made for the necessary clerical staff.

STEEL AND WOODEN FREIGHT SHOPS.

In these Shops there will be approximately 36 machines, and have a capacity for 75 cars, and in addition to the equipment necessary for the building and repairing of all classes of wooden cars, this shop can take care of the building and repairing of steel cars.

WHEEL AND MACHINE SHOPS.

There will be approximately 36 machines in this Shop, which will do all the necessary machine work in connection with the repairs and building of steel or wooden cars and coaches.

CAR FORGE SHOP.

This shop will contain approximately 20 machines, capable of doing all the necessary work in connection with Forge Shop details.

SAW MILL AND CARPENTER SHOP.

This shop will have approximately 42 machines equipped for doing all the necessary sawmill work in connection with the repairs and building of freight and passenger cars. This shop will also be of sufficient capacity to handle station equipment, and all sorts of woodwork for outside requirements, such as semaphore posts, platforms, planks, etc.

COACH SHOP.

This shop will contain approximately 24 appliances. It will hold 18 coaches undergoing repairs, and provides nickel-plating, brass finishing and upholstering departments thoroughly equipped for heavy repairs to coaches and the building of new ones.

COACH PAINT SHOP.

This shop has a capacity of 16 cars and is large enough to handle all coach painting required.

LUMBER STORAGE.

Lumber storage is also provided for.

DRY KILN.

A Dry Kiln is provided for the drying of timber in connection with coaches.

OFFICE BUILDINGS.

The Office Buildings for both the Motive Power Department and the Car Department have accommodation for the officers and staff, and each has, also, a drawing office and material testing room in the basement.

RESERVOIR.

There are two water reservoirs at the plant, one of two million gallons capacity, the other a 100,000 gallon tank.

SEWERAGE SYSTEM.

The Sewerage system is equipped with two rotary motor driven pumps, which discharge the sewage from the plant at a distance of six miles.

PUMPING PLANT.

The St. Vital pumping plant is six miles away, and supplies water from the Red River.

COST.

Total Cost of the Locomotive and Car Shop buildings, and equipment, including sewage pipe line, water pipe line, land and track-laying in connection with the shops, $4,535,372.00.

December 14, 1912.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement Showing Gross Expenditure to September 30th, 1911, on Transcona Shops Plant and Estimated Cost of Same.

Contract No.	Nature of work.	Gross expenditure to Sept. 30, 1911.	Estimated amount.
Buildings (Loco. Shops Plant).—			
23.	Locomotive Shops	$1,088,031.00	$1,167,140.00
23A.	Reservoir	81,933.00	83,932.00
27.	Red River Pump House	12,861.00	13,031.00
	Total for Loco. Shops	$1,182,825.00	$1,264,103.00
Buildings (Car Shops Plant).—			
23F.	Car Shops	$ 72,519.00	$ 823,384.00
	Total for all buildings	$1,255,344.00	$2,087,487.00

Miscell. Work (Loco. Shops Plant).—			
21A.	Levelling shop site	$ 21,826.00	$ 95,000.00
23C.	Air, steam, water, piping, etc.	49,820.00	104,820.00
23D.	Pipe tunnels and wiring ducts	14,594.00	35,727.00
23E.	Miscellaneous equipment	122,266.00	158,521.00
28.	Yard water system	23,138.00	31,139.00
30.	Wiring system	14,760.00	78,396.00
69.	Pipe covering	.....	8,335.00
25.	Water main pipe line (excav. and backfill).	.....	.....
26.	Water main pipe line (laying & distribution)	18,689.00	18,689.00
26A.	Sewer line (pump ho. to Seine Riv)	135,713.00	135,713.00
52.	Replacing damaged sewer	.....	13,968.00
21D.	Roadway	5,296.00	5,296.00
77.	Sewer connection	.....	25,000.00
	Total for Loco. Shops	$ 406,102.00	$ 710,604.00
Miscell. Work (Car Shops Plant).—			
	Piping systems	.....	$ 101,000.00
	Wiring systems	.....	45,000.00
21A.	Levelling shop site	.....	95,000.00
	Gravel fill (interior Car Shops)	.....	30,000.00
	Total for Car Shops	.....	271,000.00
	Total for all miscell. work	$ 406,102.00	$ 981,604.00
Machinery and Equipment (Loco. Shops)—			
	Machine tools equipment	$ 553,825.00	$ 807,120.00
29.	Pump house equipment	17,064.00	17,881.00
48.	Shafting, etc.	18,891.00	32,073.00
	Total for Loco. Shops	$ 589,780.00	$ 857,074.00
Machinery and equipment (Car Shops).—			
	Industrial tracks	.....	$ 1,000.00
	Machine tools	.....	183,700.00
	Cranes, motors, shafting hangers, transfer table and miscell. equip.	.....	106.800.00
	Structural steel Car Shop machinery	.....	40,000.00
	Total for Car Shops	.....	331,500.00
	Total for all machinery and equipment	589,780.00	1,188,574.00
	Grand total	$2,251,226.00	$4,257,665.00

THE HISTORY OF THE WINNIPEG TERMINALS AND ENTRANCE INTO WINNIPEG.

The Transcontinental Railway and the Grand Trunk Pacific Railway Company made an agreement with the Canadian Northern Railway Company for joint passenger terminals and city freight terminals, the joint property extending from Water Street to the Assiniboine River, whereby the Grand Trunk Pacific Railway Company and the Transcontinental Railway should each pay one per cent interest on the value of the property, as well as any improvements which the three parties might decide to make.

To reach these terminals from the East required the construction of a bridge over the Red River as well as an expensive viaduct from the proposed Red River Bridge to and across Water Street for the operation of both Canadian Northern and Transcontinental Railway trains approaching the terminal from the East. The necessity for this expensive construction was known by all of the parties in connection with the agreement.

The lands on which this Eastern approach to the terminals must be constructed were owned or controlled by Canadian Northern Railway or MacKenzie and Mann interests at the time that the agreement was made.

The agreement makes no provision for the joint use of the Red River Bridge, viaduct or the approaches to the bridge, nor do we find that any understanding or agreement was made with the Canadian Northern Railway interests for the right of way between Water Street and the Seine River which was then owned and controlled by them. We do find, however, that the Transcontinental Railway Commission undertook the construction of the viaduct and Red River Bridge and that these structures were 75 per cent completed before the Commission filed its plans or took legal possession of this property on September 27, 1910.

The agreement did not provide for a track connection between the Transcontinental Railway main line and the Canadian Northern Railway main line.

As early as 1906 the Transcontinental Railway had constructed its main line from Dundee Junction eastward. Dundee Junction is located on the Dundee Branch of the Canadian Northern Railway at a point about one-quarter of a mile from the main line of the Canadian Northern Railway, which runs from Winnipeg to Port Arthur and distant about two and a half miles east of the Canadian Northern Railway Company's Winnipeg passenger station, and it was through this Dundee Junction that the Transcontinental Railway connected with the Canadian Northern Railway, the City of Winnipeg and the Grand Trunk Pacific Railway during the years of construction of the Transcontinental Railway, and it would appear that the original intention was that this connection, or some slight modification of it, was to be the permanent route for entering Winnipeg, and it could easily have been arranged had the terminal agreement with the Canadian Northern Railway covered the territory from Dundee Junction to the Assiniboine River instead of ending abruptly at Water Street in the City of Winnipeg.

Numerous suggestions were made to connect the Transcontinental Railway at Dundee Junction with the new Red River Bridge to which they were committed under the agreement, which included running rights for the Canadian Northern Railway paralleling a portion of the Canadian Pacific Railway, as well as an independent line from the Transcona Shops direct to the Red River Bridge. The latter suggestion was finally adopted and a new line of double track railway, 4.9 miles in length, was constructed.

The principal promoter of this direct line was Chief Engineer Grant, who proposed that it should cross the Canadian Pacific Railway Emerson Branch and the streets in the vicinity on the level, and application was made to the Board of Railway Commissioners of Canada for authority to make these crossings. The Board of Railway Commissioners ordered that the Transcontinental Railway should cross this Railway and these streets overhead, which involved the construction of a large quantity of additional embankment, and the Commissioners of the Transcontinental Railway, without reference to the original promoter, accepted the ruling of the Board of Railway Commissioners and ordered the construction of the line to be proceeded with. The estimated cost of this line is $2,500,000, to which should be added whatever amount the Mackenzie and Mann interests secure for their right of way over and above the amount offered them in the Exchequer Court proceedings. They are claiming about $2,500,000 more than was offered.

On August 22, 1911, after the construction of the direct line from Transcona shops to the Red River Bridge was well under way, the Canadian Northern Railway Company, the Grand Trunk Pacific Railway Company and the Commissioners of the Transcontinental Railway entered into a tentative agreement covered by an initialled document known as "Heads of Proposed Agreement", in which the Transcontinental Railway were given running rights from Dundee Junction to the Joint Winnipeg Terminals in return for running rights over the tracks of the

Transcontinental Railway from the Canadian Northern Railway main line across the Red River and into the Winnipeg Terminals, thus giving the Transcontinental Railway two separate and distinct entrances to the Winnipeg Terminals.

The fact that this later "Heads of Agreement" was prepared and partially executed indicates that a similar agreement might have been made in the beginning which would have provided ample facilities for the entrance into Winnipeg and saved the expenditure of two and a half to three millions of dollars. The failure to take advantage of this economy rests, first, with the Commissioners of the Transcontinental Railway, who should have arranged that the Winnipeg Terminals extend east to Dundee Junction before completing any deal with the Canadian Northern Railway Company, and second, with the Grand Trunk Pacific Railway Company who were parties to these agreements for not giving the Commissioners the advantage of their knowledge in affairs of this character and insisting on the Commissioners securing a reasonable arrangement with the Canadian Northern Railway, and thirdly, MacKenzie and Mann interests should have dealt openly with the Commissioners in connection with the right of way which they controlled at that time. The Board of Railway Commissioners of Canada might have been applied to to secure running rights from Dundee Junction to the Winnipeg Terminals over the Canadian Northern Railway, instead of authorizing the overhead construction which cost the country so much money.

DRAINAGE OF ROAD CROSSINGS.

The line of the Transcontinental Railway, westerly from the Quebec Bridge, passes through an agricultural country, fenced and cultivated, and the number of farms intersected by the railway necessitates a large number of farm crossings in addition to the regular road crossings.

In grading a level crossing of a railway, provision has to be made for carrying the water which drains into the ordinary railway ditch from one side of the road crossing to the other. This is ordinarily effected by building a small wooden culvert, or by laying a cheap drainage pipe, of either tile or concrete, in the bed of the ditch, and under the grading for the crossing.

The Investigation Commission, during their inspection of the portion of the line immediately west of Quebec, were surprised to note that expensive, heavy cast-iron pipe was used for this purpose instead of the ordinary tile or concrete pipe, or small wooden culverts.

We find that the practice of using cast-iron pipe for this purpose was confined almost entirely to District "B", though small quantities were used on District "A".

The following statement shows the amount of this pipe used, with the total cost, and further figures showing that if tile and concrete pipe had been substituted at the contractor's prices for this material, a saving might have been effected of $12,072.15.

Statement showing cost of cast-iron pipe used for Drainage of Road and Farm Crossings.

District "A,"	Contract 2,	24"–	84 lin. ft. at	$5.00—	$420.00	
	Contract 3,	24"–	48 lin. ft. at	6.00—	288.00	
						$ 708.00
District "B,"	Contract 9,	18"–2128	lin. ft. at	3.75—	15,480.00	
		24"– 595	lin. ft. at	5.00—	2,975.00	
		36"– 65	lin. ft. at	7.50—	487.50	
						$18,942.50
						$19,650.50

(Note—"None on other districts".)

Average cost per lin. ft..... $4.00

For this cast-iron pipe the following items might have been substituted with the savings as shown:—

District "A,"	Contract 2, concrete pipe, 24"- 84' at $2.80—	$235.20	
	Contract 3, concrete pipe, 24"- 48' at 3.00—	144.00	
			$ 379.20
District "B,"	Contract 9, tile pipe, 18"-4128' at $1.30—	5,362.40	
	Concrete pipe, 24"- 595' at 2.65—	1,567.75	
	Concrete, 36"- 65' at 4.00—	260.00	
			7,199.15
			$7,578.35

Average cost per lin. ft..... $1.54
Total saving $12,072.15

District Engineer Foss, in the following letter to the Chief Engineer, explains how it occurred that the pipe was used for this purpose on District "A":—

No. 22-F. St. John, N.B., October 7, 1912.

Gordon Grant, Esq.,
Chief Engineer "N. T. R."
Ottawa.

Dear Sir,—

"Replying to yours of the 4th inst., File 12,144, I beg to say that the pipe referred to was purchased for use under the main line, but, later it was decided that a larger structure would have to be built, so the contractor was allowed to use this at Road Crossings.

Yours very truly,

C. O. FOSS,
District Engineer.

and Mr. Doucet's letter, reproduced herewith, confirms our contention that the use of this pipe was an unjustifiable expenditure.—

No. 1286. Quebec, 7 October, 1912.

Gordon Grant, Esq.,
Chief Engineer,
Ottawa.

Dear Sir:—

"Replying to your letter of October 4, file 12144, the cast iron pipe ordered for drainage road crossings, was ordered by ex-Division Engineer Russell without my knowledge. Cedar culverts, or, better still, open waterways should have been used, and the order is to be ascribed to an error of judgment.

Yours truly,

A. E. DOUCET,
District Engineer."

That the Division Engineer could order the Contractor to supply and install items as extravagant as these C. I. pipe without authority of the District Engineer discloses the incapability of the Division Engineer and a laxity of proper organization and supervision in the District, to which this $12,000 loss is directly chargeable.

WATER SUPPLIES.

Gravity Supplies.

On the Transcontinental Railway the engineers were permitted to expend up to $25,000 in order to obtain gravity supplies for way station tanks. This license as regards expenditure resulted in four gravity supplies being installed on District "A" at an excessive cost, and where we find cheaper water could be procured by the installation of pumping plants and at the same time a construction saving of $68,200 been effected. At way side stations where the amount of water required by locomotives is moderate, particularly when water stations are located as close together as they are on District "A", a large expenditure to obtain a gravity supply results in the water used costing per gallon greatly in excess of what it would cost had a pumping plant been installed.

A statement has been prepared covering all gravity supplies on the railway which shows the cost of those above referred to and full details in connection with pumping, etc. (See Exhibit No. 40.)

Pumping Stations.

The standard pumping plant adopted by the Transcontinental Railway at the instigation of the Grand Trunk Pacific Railway is a gasoline pump which is being supplied by the contractors at an average cost of $1,400 each. From figures which we have gathered as regards the cost of operating the pumps both from the contractors who are using them in their water service for work trains, and from the manufacturers who supply them, we find that the cost of pumping water with this equipment is about five cents a thousand gallons, which may be taken as an average figure for which the work can be done by a steam pump.

The price being paid for the gasoline pumps is about $800 in excess of what a steam pump and boiler might have been provided for, and we find that the installation of this expensive equipment has unnecessarily increased the cost of this feature of the railway by $45,600.

CONSTRUCTION OF THE NATIONAL TRANSCONTINENTAL RAILWAY EAST OF LEVIS, QUE.

This Commission does not think that the National Transcontinental Railway should have been constructed East of Levis, which was done at a cost of $35,000,000, first,—because the Government at that time had a railway in operation between Levis and Moncton, the Intercolonial; second,—because the National Transcontinental Railway would only be 33 miles shorter; third,—because the gradients on the National Transcontinental Railway are greater than those on the Intercolonial Railway; and fourth,—because the grades on the Intercolonial Railway can be reduced to four-tenths per cent Eastbound and six-tenths per cent Westbound, whereas it is practically impossible, according to the construction of the National Transcontinental Railway, to reduce the 1.10 per cent grade at 146 miles West of Moncton and the 1.10 per cent grade at Lake Pohenagamook.

The traffic on the Intercolonial Railway is such that it will in a short time be a business proposition to reduce its gradients which when completed will make it the low grade line between Levis and Halifax, rather than by way of the National Transcontinental Railway, and it is inconceivable that the grade revisions on the Intercolonial Railway above referred to will cost more than half of the amount of money expended in the construction of this portion of the National Transcontinental Railway.

While there may be some reason for the construction of a railway through the timber districts in the Eastern portion of the Province of Quebec, the construction of the Railway from Edmundston to Moncton was not justifiable because of the lack of local business along this line which two years of operation has already proved.

EVIDENCE

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN, NEAR MILEAGE 40, JULY 13th, 1912.)

WALTER YOUNGMAN, sworn:

By the Chairman:

Q. What is your Residency?—A. I am on number seven.

Q. Did you make the classification of all those cuttings?—A. I did, in conjunction with Mr. Bell.

Q. You were engaged in them?—A. Yes.

Q. You heard what Mr. Bell said about the classification on mile 1625?—A. Yes.

Q. That you and he had made it during the progress of the work; you concluded that it was 60 per cent solid and the rest loose?—A. Yes.

Q. And that, under the direction of Mr. Poulin, it was afterwards changed?—A. That is right.

Q. Had you any reason to change your own judgment, or did you defer to your superior?—A. Just deferred to my superior.

Q. You agree with Mr. Bell that all the material on this Residency is either stone, gravel or sand?—A. Yes.

Q. There is no clay in this territory? —A. No, there is no clay that I know of.

Q. Was there, in your opinion, more sand in some of these cuts than you have allowed as common?—A. Not sand. I know about my own section: I do not know about further along.

Q. Is there not more sand, and, perhaps, I should add, stones under a foot than you have allowed as common?—A. I hardly think so.

Q. This place is out of your territory?—A. Yes.

Q. Does it not present the appearance of having more, to one passing over?—A. It does to one passing over, after it is trimmed down.

Q. And you yourself would conclude, from a casual examination of it, that there was not enough common allowed, would you not—as it now appears?—A. Yes, as it now appears the sand washes over the stones, and you cannot see the same as you would when the work was being taken out.

Q. Then you can say definitely that the appearance that we get from a surface examination is not indicative of the true condition of the excavation?—A. No, not in most cases.

Q. Will the examination by sinking pits back from the top of the cutting disclose the true condition?—A. Yes, in some cases it would, if you take the pits far enough and long enough.

Q. Does it vary? The appearance on the face of it is that it is pretty uniform. Surely one or two pits on the bank would show fairly what it is?—A. Well, I should think probably it would; in some cases it may not.

Q. Of course that is quite evident, but one may reasonably expect to arrive at a fair conclusion as to the contents of that bank by sinking one or two pits, but if it happened that you went down into a pocket of sand, you would have to dig another pit to get a fair view?—A. You certainly would.

Q. In all probability it would disclose the condition?—A. Oh, yes, under most circumstances.

(N.T.R. INVESTIGATION COMMISSION: EVIDENCE TAKEN ON TRAIN AT PARENT STATION, JUNE 15th, 1912.)

WILLIAM G. BROWN, sworn:

By the Chairman:

Q. How old are you?—A. I will be twenty-nine in the fall.

Q. Where did you obtain your professional education?—A. McGill University.

Q. Are you a graduate?—A. I am.

Q. What year?—A. 1907.

Q. Where did you obtain your first job as an engineer?—A. With the Quebec Bridge company.

Q. You had not any classification of excavation out on that job, had you?—A. No, I was not in charge.

Q. When did you first become engaged in classification?—A. On the Transcontinental Railway.

Q. What was your office then?—A. I was instrument man.

Q. As an instrument man you would not classify, would you?—A. No, I would not be really engaged in classification: I would be measuring cuts.

Q. You saw classification going on during that time?—A. Yes, on the grade.

Q. Whom were you under?—A. The Resident Engineer, J. O. Montreuil.

Q. Where?—A. Residency 17, Cap Rouge.

Q. Did you get a Residency yourself at any time?—A. Yes.

Q. Did you succeed him?—A. No. I did not succeed him: that was in 1906, and I went back to college that year and finished.

Q. After you graduated did you get a Residency?—A. No, I was on level, and transitman on location.

Q. After you finished being leveller and transitman, what did you do?—A. Went on Residency 33, as Resident Engineer.

Q. Then you commenced classifying on your own account?—A. Yes.

Q. What did you do when you quit that Residency?—A. I came up on Residency 40 as Resident Engincer.

Q. How long did you remain there?—A. On Residency 33 I was from January, 1909, to November, 1910, and on Residency 40 I was from November, 1910, till July, 1912.

Q. And then?—A. Then I took over Mr. Black's division this year.

Q. As Divisional Engineer?—A. Yes.

Q. That is your experience then?—A. Well, I was working on one railroad in Gaspe about six months.

Q. What did you do there?—A. Leveller and transitman on location.

Q. You have given me all your experience now?—A. Practically all, except that when I was engaged with the Quebec Bridge Company in a minor position, I was testing cement, but I had nothing to do with classification.

Q. During all the time that you have been classifying and supervising classification, I suppose you have classified all rock found in ledges as solid rock excavation which required to be removed by blasting?—A. Ledges of more than one cubic yard.

Q. What do you understand the meaning of the words in paragraph 34 of the general specifications "All rock found in masses of more than one cubic yard, which, in the judgment of the engineer, may be best removed by blasting?"—A. I would consider those words "masses of rock" as masses of boulders occurring in quantities of more than one cubic yard.

Q. Would you not include in that a fragment that was not a boulder, which was more than one cubic yard?—A. Yes.

Q. Try and give me your interpretation of these words "All rock found in masses of more than one cubic yard"?—A. That is boulders, or a single fragment of one cubic yard, measuring one cubic yard or more.

Q. Am I correct in deducing from your answer that it must be rock alone—the mass?—A. No, sir.

Q. Then you have not given me a full definition yet; try again?—A. That masses of rock might occur with cementing material, making up the total mass, measuring a yard or more.

Q. Why do you include the cementing material?—A. Because if it were not cemented, it could be removed by pick or bar.

Q. A mass of boulders of more than a cubic yard?—A. Well, you take several boulders piled one on top of the other—

Q. Could a mass of more than a cubic yard be removed by hand, pick or bar?—A. No, it could not.

Q. At all events, you say that you interpret that to mean a mass of rock of more than one cubic yard, which may be either a fragment or a boulder, and also a mass of rocks cemented together, including the matrix?—A. Yes, exactly.

Q. Where do you find that in the paragraph?—A. Well, we had a special blue print sent up.

Q. I am taking that by itself?—A. Well, it is pretty hard to explain one clause without referring to the clause regarding loose rock.

Q. When you interpreted it, you took into consideration something which was in the following clause?—A. Yes, exactly.

Q. And after adding the two together, and considering the blue print you have spoken of, you came to the conclusion that it included the matrix, or cementing material?—A. Yes, exactly.

Q. Whether you are right or wrong in that, that is the way you interpreted it?—A. That was my idea.

Q. Did you find in your experience that you were called upon to classify rock in masses?—A. Yes, sir.

Q. And what did you classify as solid rock excavation which was rock in masses?—A. I classified as solid rock—

Q. But you classified some cementing material, I inferred, did you not?—A. Yes.

Q. What kind of cementing material did you find?—A. As a rule, it was hard clay, indurated clay, between the boulders.

Q. Then if you came on a mass of material which was made up of indurated clay and rock of one kind or another, did you always put that in as solid rock excavation?—A. No.

Q. What did you put in of that description as solid rock excavation?—A. Well, our usual rule was to have at least above fifty per cent of boulders in the form before we classified it as solid rock.

Q. Boulders or fragments of rock?—A. Yes.

Q. Were you influenced by the size of the fragments or boulders?—A. Yes.

Q. How big would the fragments or boulders necessarily be in the cementing material before you would classify the mass as solid rock excavation?—A. They would have to be over a cubic foot.

Q. What per cent of these cubic foot pieces of rock would you require in that mass?—A. At least half.

Q. So you would not classify a yard mass that only had a cubic foot in it as solid excavation, would you?—A. No, I do not think I would.

Q. You say it would have fifty per cent of rock in it?—A. Yes.

Q. And has that been the rule that you have followed from the beginning to the present time in respect of rock masses?—A. Returned as 100 per cent solid, yes.

Q. Can you tell me of all the rock masses which you have returned as 100 per cent solid, whether there was, as a matter of fact, fifty per cent of rock in it?—A. Well, to the best of my knowledge there was.

Q. What would you think the average of rock in all that you have returned would amount to, if you had to separate them now?—A. All the stuff returned as solid rock.

Q. Massed material as solid rock?—A. You want figures for it?

Q. Would it be about fifty per cent? Of all the massed material you have returned as 100 per cent solid rock excavation, what do you think the percentage of rock in those returns amounted to?—A. At least the fifty per cent.

Q. Would you like to swear there was 55 per cent?—A. No, I could not swear that, because I have to go by my boulder man's measurement.

Q. Taking his measurements to be true?—A. Yes.

Q. We are not including boulders in that over a yard. Leaving out the boulders of over a yard, and, taking into consideration in this calculation or estimate the percentage of rock which would be left in the massed material, would it be 59 per cent?—A. Well, there would be no rock left. This cementing material, as a rule, is clay surrounding the boulders, and the boulders in clay make up the massed material, so if all the boulders were taken out—

Q. I say all the boulders of a yard or over; what would all the rest amount to, in all the returns? Would they amount to 50 per cent?—A. I could not give you an answer till I looked at my figures.

Q. What did you find was the percentage of rock in the massed material that you returned of all kinds, big and little? Would you say there was about 50 per cent?—A. Yes, I would.

Q. Under the heading of massed material, you returned all boulders and fragments of rock of over a yard, each over a yard, did you not.—A. Yes.

Q. And you returned them in such form that you could separate the boulders and fragments of over a yard from the other portion of the massed material?—A. Not on Residency 33; on this one I can.

Q. On Residency 33, how did you do it?—A. I had to keep track of all the boulders myself. I had no boulder measurer, and I had to approximate them.

Q. You professed to make a separate return of the boulders and fragments of over a yard to the best of your ability?—A. Yes.

Q. So that there is a return which, if one takes that return to be correct, will show how many boulders and fragments of rock of over a yard you returned?—A. Exactly.

Q. You mean you cannot state accurately what that amounted to in the other Residency?—A. No. I could give a very good idea, though, if I had the papers.

Q. It is put down there in separate heading, is it not?—A. On that sheet of mine, yes.

Q. Then the rest of the massed material consisted of smaller boulders than a yard, which were more than a cubic foot, and smaller fragments than a yard, which were over a cubic foot, and cementing material; is that right?—A. Yes.

Q. Do you really and truly say that you did not make a practice of returning as solid rock excavation massed material which contained stones which were less than a cubic foot?—A. By massed material, you mean material classified as 100 per cent solid?

Q. Yes?—A. No.

Q. I have this from your evidence: first of all, the boulders and fragments of over a yard, which you returned as 100 per cent solid, are set down separately in your returns; as to those returned when you were on Residency 33, you would

not like to vouch for their complete accuracy. As to those returned in Residency 40, you profess to have returned them fairly correctly, and they appear separately in your sheets?—A. On my office sheets, not on the returns to Quebec.

Q. And you can make up for me a statement showing them in both Residencies from your sheets?—A. I can. I have one sheet for Residency 40 here. You want a list of the boulders on Residency 33?

Q. Yes, and fragments of rock of over a yard on both Residencies and take them from your records?—A. Yes.

Q. Give me the cubic contents?—A. All the notes were burned at Residency 40.

Q. Write out a statement, to the best of your knowledge, over the whole thing, and state the facts in connection with it?—A. Yes.

Q. And I also deduce from your evidence that you returned as 100 per cent solid rock excavation masses of material made up of stones of one kind or another, each of which was a cubic foot or more in size, of which 50 per cent was cementing material?—A. Yes.

Q. And that you think that, on the whole, it would be fair to say that your massed material, which was not boulders and fragments of more than a cubic yard in size, was about 50 per cent cementing material; is that right?—A. In a great many cases there would be less than 50 per cent.

Q. And in a great many cases perhaps more; it is the average?—A. Well, there could not be more than 50 per cent of cementing material, if you had 50 per cent boulders.

Q. Would you always have 50 per cent boulders? You are only estimating it. What would the cementing material amount to on the average, in your judgment?—A. I think, from my notes on 40 here, that the cementing material would run less than 50 per cent.

Q. Well, about what?—A. I should say between 30 and 40.

Q. Will you tell me where I can find a large quantity, where there would be this large percentage of rocks in the cementing material?—A. The best example is that cut that you said looked like a pavement.

Q. But I only saw two of those in 200 miles?—A. And that is not classified at 100 per cent.

Q. But there is no cementing material in that?—A. Not in this end; there is in the east end.

Q. There is no cementing material in what I pointed out to you that looked like a pavement at all?—A. That was yesterday's work; yes, there was some cementing material in that.

Q. But the part I speak about was near the west end; was it not just after we left the cut and you could see it at this west end?—A. Yes.

Q. And it was a whole mass of boulders lying there?—A. Yes.

Q. Nothing between them?—A. No.

Q. So that you would not call that a cemented mass?—A. No.

Q. I am talking altogether of a cement mass, and I want you to tell me where there is a single place where I can find this large percentage of rock in the cementing material?—A. Yes, I can give you a cut up above.

Q. Where is that?—A. Station 3428 to 3432. I do not claim that that goes all through the cut?—A. The cut is not classified at 100 per cent; there are only patches of it.

Q. But I want what is classified at 100 per cent. Don't you think you are putting it high in saying it would be more than 50 per cent?—A. That cut there?

Q. No, generally?—A. Generally, oh, yes.

Q. Generally would it average more than 50 to 55 per cent of rock in the cementing material?—A. No.

Q. As I recollect it, Timbrell placed it from 50 to 55 per cent; would you agree with that?—A. I think that is a very good average.

Q. When you made this first answer you had in mind this pavement that we were speaking of ?—A. Yes; that was an exceptional case.

Q. And am I not correct in saying that that was just a mass of boulders?—A. Yes.

Q. It was not a cemented material case at all, as I recollect it?—A. Not where you pointed out; it is not classified 100 per cent solid.

Q. It was just a blaze of white rock that seemed to be all sticking out, like my two fists, all through the place?—A. Yes. What you have spoken of as massed material being returned to-day, we have been speaking of it as mixed material.

Q. Either word will do, I understand. You want to say, then, that it may appear in your return either as mixed or massed material. The words "massed material" are not always used, but they mean the same thing?—A. I have returned it as mixed material, classified so much solid, so much loose, and so much common.

Q. I am only speaking of the solid. I understand you have returned as 100 per cent solid some of the mixed or massed material?—A. Yes, exactly.

Q. I also understand that you have returned as loose rock, and perhaps as common excavation, quantities of mixed or massed material?—A. Yes.

Q. I do not understand you to testify that all the massed material you returned was solid rock?—A. No.

Q. We will go now to loose rock. What large stones and boulders measuring more than one cubic foot and less than one cubic yard did you return as loose rock? I suppose that you returned all large stones and boulders measuring more than one cubic foot and less than one cubic yard, which were not cemented together, as loose rock?—A. Yes.

Q. And if you found among that mass of boulders a quantity of uncemented material which you thought should be returned, then you returned that as common excavation?—A. No, I cannot say that I did.

Q. What did you do with it?—A. Well, if these boulders were packed together, and there was sand in between them, and you could not plough the material, it was all returned as loose rock.

Q. For instance, if you found in a cut 1,000 yards of such boulders or fragments as you considered should be classified as loose rock, and in the same mass 2,000 yards of sand, you would return the whole thing as loose rock, if it could not be ploughed on account of the boulders?—A. Yes.

Q. Do you think that is right?—A. I think so. We are dealing with material in large quantities, not individually between the boulders.

Q. Have you done that in many cases?—A. A great many cases; that is, the material as a whole, if it could not be ploughed by reason of the boulders obstructing the plough.

Q. Does that amount to a very large quantity of material?—A. Yes, it amounts to considerable.

Q. What justification had you for doing that?—A. Well, I considered I was dealing with the material as a whole.

Q. Then you just returned it the same way as if it cemented the rocks together?—A. Well, if the material, as a whole, could not be ploughed, it is bound to be loose rock.

Q. And you did return it as such?—A. Yes, any material like that, that could not be ploughed.

Q. Don't you, as an engineer, think that the fair interpretation of that clause is that the material must be too hard to plough?—A. You mean the material between the boulders?

Q. Yes?—A. No, it means taking the whole mass.

Q. Supposing it was lying on a side hill, and the side of the hill was too steep for horses to climb up and down, you would put it all in as loose rock?—A. No, not in cases like that.

Q. Why would you not? You could not plough it? It is not the obstruction you are considering; it is the material?—A. Yes, but the material is taken as a whole.

Q. Why so? This classification, as I take it, separates the material, and does not take it as a whole?—A. But how are you going to get a plough in between the boulders?

Q. How are you going to get a plough up a hill that you cannot drive horses up?—A. Well, the reasonable interpretation of the specification is that if you have a cut you are supposed to loosen it up by ploughing for shovelling, for loading.

Q. That is your interpretation?—A. For common excavation.

Q. Supposing the sand was so soft that the horses sank to their bellies?—A. Well, they could not, if there were enough boulders in it.

Q. But if there were no boulders in it, and you found the sand so soft they could not get through it, you would put it in as loose?—A. No, common excavation.

Q. But they could not plough it. Don't you think you are making a rule for yourself?—A. No, I do not.

By Mr. Gutelius:

Q. Supposing you had a sand cut with a bunch of boulders, loose rock size, that amounted to a tenth of the cut in cubic yards, how would you classify it?—A. Ten per cent distributed all round?

Q. No, in a bunch?—A. I do not think I would classify it as 100 per cent loose rock.

Q. Take a 1,000 yard cut, with 100 yards of boulders in the centre, how would you classify it?—A. I would classify it as ten per cent loose and 90 per cent common.

Q. How would you arrive at it?—A. You said there was 100 yards of loose rock in the centre.

Q. Supposing there was 1,000 yards in the cut and 100 yards boulders, how would you classify?—A. I would determine as to the hardness of it; ten per cent might not be enough to obstruct ploughing.

Q. I do not care whether it obstructs ploughing?—A. If you had free shovelling it would be common excavation.

By the Chairman:

Q. It is the hardness of the stuff, is it not? If you have been classifying that way, you have been classifying wrongly, in your opinion?—A. I do not think I have been classifying wrongly practically. I may misunderstand your question.

By Mr. Gutelius:

Q. What is the difference, whether it is in a bunch or scattered, one pile or forty? (No answer.)

By the Chairman:

Q. Is not the question whether you could shovel it or plough it?—A. Yes.

Q. Then you should not classify it as loose rock, should you?—A. If you can plough it?

Q. If the material itself is not too hard to plough or shovel, you should not classify it as loose rock?—A. No.

Q. When you speak of loose rock in situ, by loose rock do you not mean small fragments, broken off, perhaps, at the side of a precipice, have dropped down

and gathered in a mass, of what you and I would call to-day broken stone?—A. Well, that is a part of the specification I do not understand. Loose rock comes under loose rock.

Q. That heading is no part of the paragraph at all. Can you not make any meaning out of it?—A. I suppose that is what it means, fragments.

Q. You come along beside a cliff, and you see at the bottom of it a whole lot of broken pieces of real rock which have fallen off the top or along the side; you constantly meet with that?—A. Yes.

Q. If that loose rock that we have been trying to describe was such that it might be removed by hand, pick or bar, would you not classify it as loose rock, irrespective of its size?—A. Yes.

Q. I am not speaking now of small boulders or of coarse gravel, but simply of loose rock, as you and I have defined it in the preceding questions; you understand that?—A. Yes, I understand that.

Q. Would you classify all cemented gravel as loose rock, whether it could be ploughed or not?—A. If it could be ploughed, I would not classify it as loose rock.

Q. Would you classify as loose rock indurated clay that could be ploughed?—A. No.

Q. Would you classify indurated clay that required only occasional blasting as loose rock?—A. What would be the other means of removal?

Q. Would you classify as loose rock indurated clay that could be ploughed by occasionally blasting it?—A. Oh, that would be loose rock.

Q. For instance, if you had a cut of 500 feet in length, and you found that in one or two places you had to put in a shot—A. Yes, necessary to put in a shot.

Q. Before you could plough the whole mass, would you put the whole mass as loose rock?—A. No, just the central part that you are speaking of.

Q. Why would you put any of it in as loose rock, because it tells you here, if you find a mass of indurated clay which you can plough after you have put in a shot or two, it shall not be loose rock? That means that, to make it loose, it is so hard that it has all to be blasted. You have not so interpreted it?—A. That it has to be all blasted?

Q. Yes?—A. I do not quite understand it.

Q. Down here, along the line, we found a big hill of sand, and I do not know whether it was you—I think it was—at any rate, one of the engineers told us that the way that was removed was this: the contractor with a shovel made a hole under it, and just put in a charge of black powder, and he shook up the whole place and brought it down, just as people do all over the country in sand pits, would you put that in as loose rock.—A. If the original material could not have been ploughed before shooting, I would.

Q. Although he just put in a charge of black powder, and perhaps brought down 1,000 yards of it, you would put that in as loose rock?—A. I think so, considering the specification and the ploughing clause.

Q. That clause says that you shall include in loose rock all material which cannot be ploughed without the necessity of blasting, does it not?—A. Yes, sir.

Q. It also says, as I take it, that you shall not include that material in which blasting is only occasionally resorted to?—A. Oh, an occasional blasting resorted to—it would be common excavation in that case.

Q. The case I give you is where a man took a shovel and made a long hole with a shovel: it was so soft he could shovel out the hole, and, for his own convenience, and not of necessity, he shoved in some black powder, to bring it all down; do you think it would be fair to put that in as loose rock?—A. No; if he could shovel the hole he could shovel the cut.

Q. The cut should be common, should it not?—A. I do not know what you are referring to.

Q. The cut where that process was gone through should be common?—A. Yes, that you can shovel.

Q. Where you could shovel the hole?—A. Sometimes these shots are put in to loosen it.

Q. But where you can shovel the *hole,* you can shovel the *whole?*—A. Yes.

By Mr. Gutelius:

Q. Is it not a fact that, in all your classification, wherever there has been any shooting you call it loose rock?—A. No, there are the cases of frost shooting.

Q. We are not talking of frost shooting?—A. Except frost shooting.

Q. As a fact, the shooting has actually told you whether it was loose rock or not?—A. No, not in my case, I do not think so, that the fact of shooting it—

Q. Can you name a case where a cut was shot that you called it common excavation?—A. No, I do not think so. I usually went by the material, by the appearance and the hardness, and testing it by a pick. I do not think the fact of them shooting altered my judgment.

Q. Was there a cut on any of your Residencies where blasting occurred that was classified as common excavation?—A. No.

Q. You never made common of anything that was shot?—A. No.

Q. So that, so far as that end of the specification was concerned, it did not apply to your work?—A. Yes.

Q. Have you studied this specification very much?—A. Yes, sir, I have gone over it.

Q. Have you thought of the word "masses"; are you a graduate of McGill?—A. Yes

Q. "All rock found in masses of more than a cubic yard"; you notice that rock is singular? Paragraph 34?—A. Yes, it is singular there.

Q. Do you not have to read that in the plural in order to make masses contain more than one piece?—A. Yes.

Q. So that when you look at it that way, from the grammar of it, there is some question in your mind as to whether those rock masses are not individual pieces?—A. Yes, sir.

Q. What do you understand by cemented material?—A. My idea of cemented material was not exactly a concrete matrix, but a material that would hold the boulders well together.

Q. What would be ideal cemented material?—A. Indurated clay, I should say, and that red iron stone.

Q. Get away from rock cuts entirely; what is the idea of cementing material that you know of in building work; what effect has that cement mortar on the masses, bricks or stones adjoining it?—A. Binds them together.

Q. If they are bound together, when you lift one the other will come with it?—A. Yes.

Q. In the work we have been over to-day, was there any of the rock that you classified as loose rock that one rock would hold to another?—A. By rock, you mean anything over a cubic foot?

Q. Yes; supposing there were two pieces, each of a cubic foot, with the hardest cementing material we saw to-day, could you bring them out without taking them apart? Could you lift one without the other?—A. I do not think I could demonstrate a cut like that.

Q. Do you think you could pick out one rock a cubic foot that would hold another rock as big as your hand?—A. I think I could.

Q. Would that be about the limit?—A. No, there might be a few individual cases, but, generally speaking, I could not find you a place where I could bring out two big rocks and they would hold together for any length of time.

Q. Could you bring out one big piece and another just the size of my hand that would hold on the side while you were carrying it?—A. Yes, I think so.

Q. In the material we saw?—A. You mean that you examined?

Q. Yes?—A. No. There is one cut you did not examine that I think would hold.

Q. Where is that one?—A. That little long cut you spoke of being taken out at rock slopes.

Q. You think they would stick together?—A. Yes.

Q. Are there any more? The one right next to it?—A. The one right next to it is much the same material, only the boulders are smaller.

Q. Any others?—A. Yes, there are a few down on this end of the work; there is one I know of, with the matrix of the red stuff.

Q. That makes three?—A. Yes.

Q. Can you think of any more?—A. I consider that cut we went into this afternoon, in the place where you were speaking of the rock hanging out, that in that cut, in certain spots, that the boulders would hang together.

Q. Only in a few places?—A. Yes, there are only a few places classified 100 per cent.

Q. Generally speaking, 90 per cent of the massed material today, that we went over, would not hold up a rock as big as your hand on another?—A. Ninety per cent of the material we have examined to-day—you mean between common excavation and cuts and everything.

Q. I want to get your idea of the percentage of these mixed material cuts that had cementing material in them that you could say contained a cementing element, or cementing property, sufficient to hold a piece as big as your hand? Is there more than ten per cent of them?—A. No.

Q. Who taught you how to classify?—A. My first experience was on Residency 17.

Q. Who taught you how to classify?—A. Well, he did not exactly teach me, but I had to get it up for myself by measuring rock cuts and stripping, and that kind of thing.

Q. What men talked to you in a way that would instruct you in classification?—A. Mr. Doucet.

Q. Who else?—A. Mr. Ferguson.

Q. And the specification and the blue print covered your information?—A. Yes, and I was with Mr. Black.

Q. So that your whole experience as a classifier came from the specifications, your superior officers, and those instructions?—A. Yes.

Q. These blue print instructions?—A. Yes.

Q. Did you ever see a letter that went with the Lumsden blue print?—A. Yes.

Q. What did that say, roughly?—A. I remember the beginning of it, that it went into the details of this, and I think at the end it mentioned that in some cases where it was not practicable for the engineer to measure the stuff, that it could be estimated.

Q. What was said about percentages in item 5 in the letter?—A. It does not state anything about percentages here.

Q. But what was said in the letter?—A. The letter, so far as I understood, said that where it was not practicable for the engineer—

Q. Did it say anything about 50 per cent of rocks in the material?—A. No, it did not.

Q. You never saw Mr. Doucet's letter?—A. No. I have had it on general information from my superiors that that was the usual way.

By the Chairman:

Q. Were you ever directed to raise your classification throughout your experience above what you had put it at?—A. In individual cuts?

Q. Generally?—A. Yes, individually, in a few cases.

Q. Had you any general instructions to raise your percentages?—A. None whatever.

Q. Were you ever instructed to lower your classification?—A. Yes.

Q. Were you given general instructions to lower what you had been doing?—A. No. Mr. Doucet's instructions were to give fair classification.

Q. I am not speaking of that?—A. But never generally.

Q. Sometimes you were told you had under-classified and sometimes you were told you had over-classified?—A. Yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT THE TRANSCONTINENTAL OFFICES, QUEBEC, AUGUST 17th, 1912.)

ALFRED A. PARADIS, sworn:

By the Chairman:

Q. How old are you?—A. Thirty-nine.

Q. You are a Civil Engineer?—A. Yes.

Q. Are you a graduate of any college?—A. No.

Q. Educated where?—A. National Business College and private tutor, and then I followed the course of the International Correspondence School, of Pennsylvania.

Q. You are employed by the Transcontinental as what?—A. Resident Engineer.

Q. For what Residencies?—A. At present 8, 9 and 10.

Q. And, prior to that, Resident Engineer where?—A. Residence No. 9.

Q. What district?—A. East of Quebec.

Q. In whose contract?—A. M. P. and J. T. Davis.

Q. Your Residencies are in their contracts?—A. Yes.

Q. Before you became Resident Engineer, what were you employed at?—A. Different positions on the Location party of the Transcontinental.

Q. Before you were engaged on the Transcontinental, had you any other experience as a railway construction engineer?—A. No, sir.

Q. You commenced classifying as Resident Engineer when?—A. November or December, 1907.

Q. And you have been at it ever since?—A. Yes.

Q. From whom did you get your instructions as to how to classify material?—A. Well, from the Division Engineers.

Q. You had not classified before that on any other road?—A. No.

Q. You went in the first morning for the purpose of classifying the material to make your estimate?—A. Yes.

Q. Did anybody go with you the first time?—A. The first estimate, I believe so.

Q. Don't say "believe": do you recollect?—A. Yes, as far as I know, yes.

Q. Do you recall now about it: surely you remember the first time you commenced to do this important work?—A. Yes.

Q. Do you recall that any person went with you?—A. Yes, I can say that.

Q. Who was it?—A. C. Garnet.

Q. Garnet was what?—A. Division Engineer.

Q. Had he been classifying, to your knowledge, material before that on this road?—A. Yes, sir.

Q. Where is he now?—A. I do not know.

Q. Not in the employment of the Transcontinental?—A. Not that I know of.

Q. Where was it you did your first classifying, about what mileage?—A. About mileage 85: approximately 85.6.

Q. Have you your notes?—A. What notes?
Q. Your notes taken in the field, showing that classification?—A. No.
Q. Where are they?—A. I have not them here.
Q. Where are they?—A. In camp.
Q. You should have brought them with you?—A. I have these notes here. (Producing notes.)
Q. That is a compilation, showing the results?—A. Yes.
Q. Can you recall what it was that you examined there? Can you recall that cut?—A. Yes, I think I can.
Q. Describe it, and see if your memory is any use?—A. That cut up there was boulders, clay and hardpan, a little common excavation in pockets—very little.
Q. Anything else?—A. No, not that I remember of.
Q. This is a ledge rock cutting: there was ledge rock in that cutting?—A. Not in the first cut.
Q. What would it be?—A. 85.2½ approximately: 85.5 is ledge rock.
Q. That is right. Now, 85.4: do you recall that?—A. Yes.
Q. In that you have 1423 mixed material, classified as solid rock, 721 loose rock and 245 common. What was the mixed material in that cutting?—A. It consisted specially of big boulders.
Q. Was it measured boulders?—A. Yes, sir, they were measured boulders, excepting for the first two months—two or three months.
Q. Then did you return it as mixed material?—A. Yes.
Q. Why did you, if it was boulders?—A. On a percentage basis.
Q. But I am asking you why you returned boulders as mixed material?—A. It was boulders mixed with clay and other material.
Q. You did not say that before. I asked you before what that 1423 cubic yards of mixed material consisted of, and you said boulders, did you not?—A. Yes.
Q. Was it boulders?—A. Yes.
Q. And anything else?—A. I do not think it.
Q. Why on earth did you return it as mixed material? Why did you not return it as boulders?—A. Did I not return it as solid rock?
Q. No, you returned it as solid rock mixed. What I want to find is this: when you had boulders pure and simple, did you return them under mixed material? This profile I have before me just puts it in as solid 1423.—A. Yes.
Q. But Mr. Gutelius has taken it down S.R.M., and I think it is so on the blue print, is it not? Can we get the returns from that—A. Yes. I say "M.M." —mixed material—in cross-sections. There is approximately 2500 yards, or whatever there is, the quantity in this cut. Well, this cut, as a whole, is mixed material, out of which there is 1423 yards of solid rock.
Q. Do you swear there was in that boulders a yard or over?—A. Yes.
Q. 1423 yards?—A. I swear I believe so.
Q. You saw it, and I want your definite statement about it?—A. I cannot give it.
Q. Why?—A. I cannot swear there was 1423 yards there of boulders: I cannot do that, nor any other man.
Q. I want your evidence?—A. I can swear I believe the returns were right.
Q. You know whether they were right or not, don't you?—A. As far as my knowledge goes.
Q. You made the return?—A. Yes.
Q. And the examination?—A. Yes.
Q. And when you said the boulders were there, people were supposed to believe it?—A. Yes.

Q. What is the necessity of adding "believe" to it? Can you not say whether it is so or not?—A. I can say I believe, but I cannot say that it is so.

Q. Why not?—A. Because it might vary: it might be a little bit more or less.

Q. I ask you, approximately: did you put in a boulder which was half a yard?—A. No, I did not.

Q. Will you swear that all the boulders that were put in there by you were about a yard at least?—A. Yes, I can swear that—in my judgment.

Q. You did not knowingly put in boulders that were not, perhaps, 25 or 26 cubic feet?—A. No.

Q. You can swear that?—A. Yes.

Q. Then there is no mixed material returned in that cut as solid rock?—A. No.

Q. Did you measure, count, or estimate your boulders?—A. Yes, sir.

Q. Which did you do?—A. I measured a few of the boulders myself: a few others were measured by subordinates: the boulders were measured by contractor's foremen.

Q. By the contractor's foremen?—A. Yes.

Q. Did you take their word for it?—A. No, not always.

Q. Did you ever take their word for it?—A. Sometimes I did, and sometimes I did not.

Q. Did you take their word for the measurement in many cases?—A. Yes, I did.

Q. Is that part of your duty, to let the contractor do your measuring?—A. No: as far as doing the measuring all the time myself, I could not do it.

Q. Had you boulder measurers?—A. No, sir, I did not.

Q. Who had you to assist you?—A. I had rodmen and tapemen.

Q. How long was your Residency?—A. 11 miles.

Q. Could you not be over that Residency every day or so?—A. No.

Q. Why?—A. Because in making the estimates, returns, or plans, we had to do, and things like that, I could not tramp over the work every day.

Q. But every two or three days?—A. I generally used to go over the work about twice a week.

Q. Did you return any mixed material at all as solid rock? That is a plain question—A. Yes: I am trying to think if I have or not.

Q. Did you return mixed material as solid rock in many cases? It is a common practice to return mixed material as solid rock, and I want to know if you did that, because I have here what I thought was a return showing that you did, and I want to find out as a fact whether you did or not. Do you know what mixed material is—A. Yes.

Q. Tell me what it is?—A. Is it not a rock you can mix—

Q. Tell me what it is?—A. Is it not rock mixed with other stuff, or any other material, such as clay and boulders? Is that not it?

Q. I am asking you?—A. That is what I understand it is.

Q. Did you return any mixed material as solid rock?—A. As a whole, no.

Q. Then you did not count anything but rock as solid rock?—A. No.

Q. Then you looked upon solid rock excavation, and so classified the cuts as to exclude anything but solid rock?—A. Yes.

Q. You did not tell me so when you were out there on the field?—A. I did not, eh?

Q. No?—A. Well, I think this question of mixed material—you see there is so much solid rock as mixed material.

Q. You did not so tell me on the field?—A. Probably not.

Q. Would you probably tell me something that was not true?—A. No, sir, I did not mean to tell you anything which was not true.

Q. Perhaps you do not appreciate it. I am asking you whether or not you excluded all other material than solid rock from your estimates, and you say you did?—A. Do you mean on the whole Residency, or on the cuts we are just talking about?

Q. No, on the Residency?—A. Yes, sir, I did.

Q. Did what?—A. I did return some mixed material.

Q. Then in your answers that you have given me, you thought I was referring to two cuts?—A. Yes.

Q. I was not referring to two cuts, but I was referring generally to your practice in making out your estimates, and in your practice in making up your estimates did you include any material excepting solid rock—A. Yes.

Q. What did you include?—A. Rock in masses.

Q. That does not, to my mind, convey nothing more than solid rock. I ask you what you returned?—A. If you want to take that rock in masses, solid rock—

Q. I do not want to take anything: I want you to tell me what you returned as solid rock?—A. I have returned solid rock, sir.

Q. I am going to leave you there, if you will not answer the question?—A. Is that not answering it?

Q. Do you understand the question?—A. Yes, I do now.

Q. Then you have answered it that you returned as solid rock only solid rock?—A. Yes.

Q. You know that is not correct: are you answering these questions at random, without any idea of the consequences of them?—A. No, sir.

Q. I tried several times to make you understand what I meant, and if I am to rely on your evidence, I want you to answer me correctly?—A. That is what I mean.

Q. Excuse me, you do not mean that, because, in the same breath, you have already told me you returned other material as solid rock. What did you return as solid rock excavation?—A. Anything in boulders measuring a yard or more, ledge rock and assembled rock.

Q. What is assembled rock?—A. Assembled rock in masses cemented together.

Q. Are the boulders a yard or over, or the masses?—A. The masses.

Q. Then I am wrong and you are right. You mean that that mass, taken as a whole, is a yard or over?—A. Yes.

Q. How big were the stones in that mass?—A. I do not know, sir: I did not measure everyone of them.

Q. Were they as big as my fist?—A. No, as a rule, they were big boulders.

Q. How big?—A. Well, ranging from three or four feet up to a yard or more.

Q. Did you return in every cut boulders which were a yard or more, separately from the other material?—A. From the other material which was not solid rock, yes, sir.

Q. I do not think you appreciate the English language well enough to see what I mean?—A. I would have no objection if you would sooner question me in French.

Q. Have you anything which shows the quantity of boulders which measured more than a yard in your Residency?—A. Yes, approximately.

Q. Let me see that return which you have before you?—A. Here it is.

Q. I notice in your return of quantities and classification in cuts, borrow-pits and ditches, which you have produced here, you have a heading called "Boulders by measurement"?—A. Yes.

Q. Have you grouped under that heading all the boulders of over a yard?—A. Yes, sir.

Q. So that, either at the time, or since, you have made up the yardage, or by estimate of all the boulders of a yard or over in your Residency?—A. Yes.

Q. Have you here returns which cover all your Residencies?—A. Yes, sir.

Q. Will you tell me how much the total yardage of boulders of a yard or over is in your three Residencies?—A. Yes.

Q. What is it?—A. Residency number 10 in cuts, 50,774, Residency number 9 in cuts 37,229, Residency number 9 again in catchwater ditches, river and road diversion, 17,156, Residency number 8 in cuts 22,399; Residency number 8 again, in catchwater ditches, 10,957.

Q. Now, you have also, under your return of quantities and classification in cuts, borrow pits and ditches, a heading called "Assembled rock"?—A. Yes.

Q. That is an addition to the boulders by measurement, is it not?—A. Yes.

Q. Will you tell me the amount of assembled rock in each of your Residencies? That can be got by adding the quantities under those headings in this document?—A. Yes.

Q. The boulders by measurement are not included in the assembled rock?—A. No, sir.

Q. And by measurement you mean all the boulders of a yard or over?—A. Yes, and some assembled rock in the boulders, too.

Q. Some assembled rock in the boulders?—A. Yes.

Q. Then boulders by measurement includes something else?—A. Yes.

Q. It may include boulders of less than a yard?—A. If they are in masses, yes.

Q. So that is not reliable as showing only the boulders of a yard or over?—A. No, sir.

Q. Why did you put it under that heading? Why did you not put it under the Assembled Rock heading, because it is misleading? It is assembled rock, is it not?—A. Yes.

Q. Part of these which are classified as boulders by measurement are not boulders by measurement?—A. No, sir, for this simple reason, that in measuring boulders in the cut you may find a place where there is ten or fifteen feet square, which are boulders in masses cemented together. These boulders were taken by measurement as boulders.

Q. As a mass of boulders?—A. Yes.

Q. But they were under a yard in a great many cases?—A. Yes, when massed together.

Q. So that the return is not illuminating in any way: it is not to be relied upon as showing the boulders of a yard?—A. No, sir, I cannot say that.

Q. What proportion of what you have classified as boulders by measurement was boulders of a smaller size in masses?—A. I did not separate them in every case: I do not know.

Q. Can you give me a rough idea?—A. In cases there might be ten to twenty-five per cent.

Q. Would it average 25 per cent over all your Residencies?—A. No, I hardly think so.

Q. What would it average?—A. Approximately 20 per cent.

Q. What did you make a column of assembled rock for?—A. When it was a distinct line, to say when there was a distinct place that we could show exactly the situation, the place.

Q. Under assembled rock you have not put in boulders of a yard or over?—A. No, sir.

Q. Assembled rock is made up of smaller boulders and other material?—A. Yes.

Q. I am speaking of what appears under the heading "Assembled Rock": that is made of smaller boulders and other material?—A. No, in the assembled rock there might be big boulders as well.

Q. How could that be?—A. Because in assembled rock you will find small boulders and big boulders as well: as a rule they are not assorted.

Q. But you have just told me that where you found big boulders in masses you put them in the boulder measurement?—A. I told you in places where they were as practically an individual boulder, but where there was a distinct line, say right across the cut, or something similar, then they were calculated by showing the difference by the line—calculation.

Q. Explain by a sketch, so that I will understand it, because I really cannot understand it at all?—(Witness makes sketch and explains.)

Q. You have shown me a sketch here which shows a cross-section of a cut?—A. Yes.

Q. And in that cross-section you show a quantity of small stones, and two or three large stones: I am not speaking of their size now: and some material between them?—A. Yes.

Q. What size are those stones in that sketch?—A. They might vary from six inches to five feet in diameter, or ten feet in diameter.

Q. Do you mean to tell me that you would take a great big boulder like that and not measure it—five or ten feet in diameter?—A. No, sir, if it assembled, I did not.

Q. We will go through that cut which you show me the cross-section of. The contractor first shoots the cut, does he not?—A. Yes.

Q. With powder or with dynamite?—A. Yes.

Q. After he shoots it, what appearance would such a cut as you have pictured here have?—A. Until you come to the face again where it is not shot, it will be all broken to pieces.

Q. The big boulders would not be broken up in that case?—A. Not in every case, no.

Q. Would they in any case?—A. Yes, some of them might be broken up.

Q. Would the big boulders of eight or ten yards be broken up?—A. Some of the times it might, and some not.

Q. Although it had not been drilled?—A. No, sir.

Q. You mean it would not?—A. That it would not be.

Q. After that was done, when the mass was all loosened up, what would the contractor proceed to do?—A. Put it in cars: if there were any boulders not broken up, they would finish them, break them in pieces, so that they could handle them.

Q. He would first take out the material that was small enough to be moved?—A. No, he would proceed by digging everything out as he went along.

Q. Would he stop to break up the big boulders before he took the other material out?—A. If he came to a big boulder, yes, he would, as a rule.

Q. Could you see the big boulders, then?—A. The ones that are broken up, yes.

Q. I have seen when they were taking out cuts that they would take out all the loose material, and then bulldoze the big boulder?—A. I do not know what that means.

Q. That is putting a shot on top?—A. Yes, they have done that in cases.

Q. How did you know those big boulders were in there?—A. I think that sketch gives you a pretty good impression of my idea.

Q. No. I can see the boulders before the shot has gone in, and I can count them as they appear on the face, and there would be no necessity to return them as mixed material—the big boulders?—A. No.

Q. You can see them and count them and measure them, according to the sketch?—A. Yes.

Q. Why did you not put the big boulders in separately?—A. Because they were in masses.

Q. But they were big boulders?—A. Yes.

Q. Why did you not put them in separately?—A. Because they were in masses, what we call assembled rock.

Q. You did that, as a matter of fact, but you could have returned them separately, could you not?—A. Yes, I could have returned them in any way at all, I suppose; that is the way I did do it.

Q. And then, to make an end of it, that column of boulders by measurement is not accurate: it shows something else than boulders by measurement?—A. Yes, it shows boulders in masses.

Q. Now, is there anything else that you have put in, in this detailed column, that includes something else than it says it includes?—A. No, sir, not that I know of.

Q. Then you are right under that "Boulders by measurement and in masses?"—A. I should say yes.

Q. When you saw a quantity of material in masses which you proposed to classify as solid rock, how did you make up your mind whether it was to be classified as solid rock, or as loose rock excavation?—A. When the boulders were in masses, the masses were over a cubic yard, and they had to be removed by blasting.

Q. Say that wall in front of us is a cross-section of a cut, and there is one big boulder on that side and one big boulder over here, and there is one down in the centre, three big boulders, and it is all, you think, cemented together?—A. Yes.

Q. Would that go as solid rock?—A. Yes.

Q. Although the proportion of boulders was only perhaps 15 per cent.?—A. No, sir.

Q. Why did you say yes sir?—A. If the percentage is only 15 per cent, I hardly think it is solid rock.

Q. Why does the per cent. make the thing solid rock?—A. Because if you take the boulders and put them too far apart, I hardly think the material between unless it is a special case, would be called solid rock.

Q. Why not?—A. Because there would not be enough rock in it.

Q. Then the same material in one case would be solid rock and in another case would be loose rock?—A. Between, yes.

Q. Then the material you put in as solid rock, if it is all by itself, is not solid rock?—A. If there is no rock amongst it, yes.

Q. Am I right in saying that 50 per cent. of your assembled rock, taken over all your Residencies, would be the cementing material?—A. Over Residency 9, yes.

Q. Over Residency 10?—A. I do not know.

Q. Over Residency 8?—A. I do not know.

Q. How did you not know as to the classification in the last two Residencies?—A. Because I was not the engineer in charge when the classification was made.

Q. Had you any cases of overbreak in your Residency where you did the classifying?—A. No, sir; I had outside slopes, but did not have overbreak.

Q. Do you remember mileage 85.5?—A. Yes.

Q. I have a note here that you told me at Merchant Puic, or that somebody told me, that there were 500 yards of avoidable overbreak in that cut?—A. Yes, sir, I think there is approximately.

Q. That is overbreak?—A. Which was not allowed.

Q. But you said you had no overbreak in your place at all; what do you mean by that?—A. What I meant by having no overbreak is in that particular place that you mentioned, there was approximately 500 yards which was not counted, being outside the regular roadbed, which, in my place, was wasted.

Q. Was it overbreak?—A. Overbreak is rock which was broken up more than necessary.

Q. That is avoidable overbreak?—A. Yes.

Q. Well, there was overbreak in your Residency?—A. Yes, approximately 500 yards.

Q. I asked you if there was any overbreak—I mean avoidable overbreak—in your Residency?—A. Yes, if I said that I take it back: I made a mistake.

Q. Do you remember 86.1?—A. Yes.

Q. The common was wasted?—A. Yes.

Q. And you did not pay for the waste; is that right?—A. Yes.

Q. It was wasted because it was wet?—A. Yes.

Q. In 93.3 the material is wasted at the east end, is it not?—A. I believe so.

Q. It was required in the fill, because part of that fill was train haul?—A. Well, I am not very sure of that; I am not positive.

Q. Take a look at it? (Witness refers to book).—A. Yes, as far as I remember, there was some material wasted there.

Q. Did you allow it?—A. I was not the Resident Engineer.

Q. Do you know whether it was allowed or not?—A. I think it was.

Q. Where is the mileage of which you were Resident Engineer?—A. I was always Resident Engineer from mile 79.2 to mile 90, and have been for perhaps two years, and a year and a half from mile 68 to 103.

Q. Take 79; were you at 79?—A. 79.2.

Q. Was any wasted at 79?—A. I think so.

Q. Was it allowed?—A. No, sir, it was allowed, but it is going to be covered by train haul filling, and deducted from the contractors. I have orders to do that, sir.

Q. 82; do you remember we walked over that?—A. Yes.

Q. My note is that we walked over it, and could see no evidence to satisfy us that there was half of the amount of solid rock and boulders which is allowed. It is a very low cut, and we walked through the ditches and could find no evidence to satisfy us that there was the quantity of boulders allowed. Fotheringham saw this and made a complaint. Do you remember what his complaint was?—A. As far as I know, Mr. Fotheringham never made any complaints.

Q. I do not know where I got that information, but I have it here in my note. Don't you think you have overclassified that cut?—A. No.

Q. You could not show us in the ditch the boulders, could you?—A. No, sir.

Q. Apparently wherever there was a big boulder it was not taken out?—A. It was not taken out in every case.

Q. It was not taken out in dozens of cases?—A. Perhaps so.

Q. So apparently they did not take out the big boulders out of the ditches?—A. In some cases they evidently did not.

Q. What did they leave them there for?—A. Because they did not take them away.

Q. It looks to me as if they had left all the big boulders, and taken out all the little boulders they could move?—A. I do not think it is the case. I think in many cases they did take them out, and in a few cases they left them in.

Q. Why did you allow them to leave them in?—A. Well, in cases they should be taken out, and in other cases they do not hurt.

Q. They block the ditch?—A. Yes, in places.

Q. Why did you not make them take them out? Do you remember about that ditch? Is it not a matter of fact that they did not take the big boulders out of the ditch?—A. In places they did not.

Q. But in all places?—A. I think they have in places.

Q. Was there any evidence of one boulder along that ditch having been broken up?—A. I think so, sir.

Q. Did you point that out to us?—A. I think I did.

Q. To whom? To Major Leonard and me?—A. Yes.

Q. Did we not say to you half a dozen times "Can you not show us where there were some taken out?—A. You did, sir.

Q. Did Major Leonard not say he could not see any?—A. I guess he did.

Q. Do you swear you showed us broken boulders in that ditch?—A. I swear I believe I did down below, just at the beginning of the cut.

Q. In the ditch?—A. In the ditch.

Q. Have you the return of that cut there?—A. Yes, here it is.

Q. This is a very low cut, is it not?—A. For about 1,000 feet, yes.

Q. And a boulder which was a yard in this ditch would come to the top, would it not?—A. In the ditches, yes.

Q. And in most places they would come to the top in the cut?—A. About 1,000 feet, and at 1,200 in the cut they would not.

Q. About how many feet are there in that cut?—A. About 2,400.

Q. For about half the distance they would come to the top?—A. Yes.

Q. And you only showed 34 in the whole cut?—A. Over the cross-section lines, yes.

Q. Surface boulders?—A. Yes, above cross-section lines.

Q. Do you say there were 5,170 yards that were measured boulders in that cut?—A. And assembled rock, yes.

Q. You have not any assembled rock in that cut at all?—A. No, it is this item.

Q. How much assembled rock was there in that cut?—A. I have not it separately.

Q. What do you think there was? What proportion?—A. Approximately 25 per cent.

Q. May I say that in all your boulder measurement there is 25 per cent. of assembled rock?—A. In the average of the whole Residency I hardly think it would go over 20 per cent.

Q. You apparently have only one place in your whole Residency where there is any assembled rock?—A. Distinct, yes.

Q. Where is that?—A. At mile 83.1.

Q. You pointed out the material that you called cementing material at 83.6, did you not?—A. Yes, sir.

Q. And that was simply a hard clay, was it not?—A. No, sir, I cannot say that.

Q. What do you swear it was now, because it is there and we can have it looked at? What do you say it was, if it was anything more than hard clay?—A. It was big rocks—

Q. No, I am referring to the cementing material. You pointed out to me the cementing material at 83.6?—A. I pointed out to you some material, yes.

Q. Which you said was cementing material, did you not?—A. No, sir, you asked me to find some, and I looked in one special place, and in that special place I hardly think the material was solid rock.

Q. You told me it was, and now you say you do not think it was. I have this down, and I did not write this down without your telling me; "The cementing material was simply hard clay; Mr. Paradis showed it to me?"—A. Perhaps in the special place where we dug.

Q. You showed me that, and said that was the cementing material?—A. I do not remember telling you it was cemented material.

Q. What did you tell me it was? I said cementing material, not cemented material; you know what I mean?—A. I know what you mean now; I did not at first.

Q. The material that held the boulders together?—A. Yes.

Q. You pointed it out to me, did you not?—A. Yes.

Q. That was only clay?—A. Hard pan.

Q. Clay?—A. Clay and boulders.

Q. Not boulders: I am asking only about the cementing material. That material was only clay, was it not, of one kind or another?—A. Yes, sir.

Q. What other kind of material did you have in your Residency which you called cementing material, which cemented boulders together?—A. Clay and small boulders.

Q. No, not the boulders; what was the stuff that held the boulders together?—A. You might call it clay, if you like.

Q. You say it was clay, do you?—A. Yes.

Q. All through your Residency?—A. Yes.

Q. At 84.2 my note is that there is a foot of common along here and you have not allowed any?—A. Oh, yes, we have.

Q. Is there any common there?—A. Yes, 450 yards.

Q. How much would there be if there was a foot over it all?—A. I cannot tell you.

Q. Can you not tell me?—A. If I took a pencil and worked it out, I could. (Witness makes calculation.) Approximately 1065 yards.

Q. You have 450 yards?—A. Yes, because I think there was not a foot over the whole thing.

Q. Along the cuts it showed a foot over it all at the least?—A. No, sir, I do not think it.

Q. Look at the cross-section, what does it show?—A. It shows two quantities.

Q. Of what?—A. Of material.

Q. What does it show in common?—A. 450 yards.

Q. Where is it shown on the section?—A. It is not figured independently on the section.

Q. Why not?—A. Because it is not.

Q. Why is it not?—A. Because it was not.

Q. Well, why was it not? It was your duty to do it. Because it is not is no reason: is it because you guessed it: is that not the truth?—A. No.

Q. You did not figure it?—A. Yes.

Q. Where?—A. As we went along in this cut, supposing it was four or five hundred feet where there was no excavation—

Q. Do not suppose at all: I want the facts?—A. I cannot tell you the exact fact on this cross-section.

Q. Can you tell me what there was in loose on that section?—A. No: according to the sections independently.

Q. Can you tell me what there was of solid?—A. Independently, no.

Q. What is the good of the cross-sections?—A. The cross-sections show the quantity as a whole.

Q. Only that?—A. Yes.

Q. There is no cross-section to show anything more than the contents of the section?—A. No.

Q. Without dividing it in any way at all?—A. No.

Q. Why is that?—A. Because, if I remember, I did not think it necessary to make it on this section: it was for the office cross-sections.

Q. Show me the other sections?—A. I have no other sections—I mean the sections in the office: I did not think it was necessary to show the differences for here.

Q. You mean to say you made a cross-section in your own offices showing the different materials, but you only returned to this office the outline of the section: is that right?—A. Yes, that is right.

Q. That is what you mean?—A. Yes, sir, that is what I mean.

Q. Then the last one shows the outline of the section in one place, and next above it where it rises larger in another place, and next above it larger, and so on, till you get the whole section?—A. Yes, sir.

Q. This cross-section is of no use to any person in ascertaining the quantities, is it?—A. Independently?

Q. To ascertain the quantities independently, it is not worth the snap of your finger?—A. No, sir.

Q. Is that the way they all are?—A.—Yes.

Q. Did you never return anything at all that gave any more information than this in cross-sections?—A. No, sir.

Q. Has not your Division Engineer gone over the cross-sections?—A. Oh, yes, he has seen all these things himself.

Q. He has seen your office cross-sections?—A. Yes, he has seen all that, I think.

Q. When did he see them?—A. I do not know.

Q. Then you do not know whether he has or not?—A. Yes, I think he has.

Q. Why do you think so?—A. Because I think it is so.

Q. That is not an answer?—A. Because I think he has seen them.

Q. What makes you think he has seen them?—A. I cannot say positively he has seen every one of them.

Q. Have you ever seen him looking at any of your cross-sections in your office?—A. Yes, I think he has.

Q. You saw him looking at them?—A. Yes. as far as I remember, he has.

Q. Who is the present Division Engineer?—A. Mr. Dick.

Q. Has he looked over your cross-sections?—A. As far as I remember, he has.

Q. You remember at one place where you and I took a shovel. You did some digging, and while you were digging Mr. Gutelius came over and took the shovel in his hand and took out some material and showed it to you?—A. Yes.

Q. Where was that?—A. As far as I can remember, it was at mile 100.5.

Q. Was it not 97?—A. It may have been, but as far as I remember, I think it was 100.5.

Q. What were we doing there?—A. We were trying to find some common excavation, I think.

Q. What did you think that material was that we dug up there? What did you say it was?—A. As far as I remember, I said I thought it was loose rock.

Q. Did not Mr. Gutelius take a shovel full and say to you "You know that is not loose rock" and you admitted it was not? You ought to remember: it was only last week?—A. Well, I said——

Q. Do not qualify everything; just say what you did?—A. I said "If this stuff is separate from the boulders, it is common excavation."

Q. But yet you thought that when that was with boulders it made it solid rock?—A. No, loose rock.

Q. Did you not first say that the earth was loose rock?—A. No, sir.

Q. You did not?—A. I did not say that the earth was loose rock.

Q. You did not?—A. No; if I did, I made a mistake.

Q. You did not make a mistake about it at all. You showed it to me and you said it was loose rock. and Mr. Gutelius said "Do you mean to say it is loose rock"? and took a shovel full, and you said it was not?—A. Well, my meaning was that if the earth was mixed in with boulders it was loose rock.

Q. It was not with boulders at all: it was up on the bank and it was a post hole that we were digging out?—A. Yes, I think there were boulders.

By Mr. Gutelius:

Q. What reply did you make to me when I said "Is not that shovel full common excavation"?—A. I think I said yes. I think I said it was common excavation.

Q. You only think?—A. In the shovel full you gave me.

Q. Why did you not say right off "I said that was common excavation," and not convey the idea that I was trying to get you to say something you did not actually say on the cut?—A. I am trying to say exactly what I did say.

Q. Why don't you answer yes?—A. Yes, all right.

Q. And you previously told me it was loose rock?—A. Before Mr. Gutelius came up, yes, I did.

Q. Do you, as a matter of fact, put in as loose rock material of that description in your estimates?—A. Yes, as the material stands there.

(N. T. R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT QUEBEC, AUG. 19, 1912, AT THE OFFICES OF THE N. T. R.)

N. R. BEAUDETTE, sworn:

Q. What is your position on the Transcontinental?—A. Resident Engineer.

Q. In Residency 16?—A. Yes.

Q. What mileage?—A. 1 to 12: zero to 12.

Q. On which side of the river?—A. South side of the river.

Q. How long have you been Resident on that division?—A. Five years: since 1907: this will be the sixth year.

Q. Ever since the work commenced?—A. Yes.

Q. So that you have made all the classification in your Residency?—A. Yes, sir; of course with the approval of the Divisional Engineer.

Q. What experience had you before you went into this railway?—A. I was on the location of the work for about two or three years before that, I think, and I was on land survey before for two years.

Q. Where were you educated?—A. In a college at Rigaud, between Montreal and Ottawa.

Q. This is your first experience on the Transcontinental?—A. Yes.

Q. You have gained all your knowledge of classification while in the service of the Commission?—A. Yes. I was on construction on the north shore on another residency.

Q. You have gained all your experience while you were in the employ of the Commission?—A. Yes.

Q. The first place where you have classification on your Residency is just before you cross the Chaudiere, is it not?—A. Yes.

Q. That is a cut?—A. Yes.

Q. A rock cut?—A. Rock and other material.

Q. The first is a big cut. After you cross the Chaudiere River, coming away from the Bridge?—A. Yes.

Q. You classified that as 29,114 ledge, 20,570 of massed material and 216,603 of loose, and 47,833 common: is that your classification?—A. Yes. But you remember when you came to the cut the classification I gave you of that assembled rock, and that the assembled rock, although shown and marked as assembled rock, mostly would be ledge rock, if you remember my explanations about it, so there would not be any massed rock or assembled rock in that material.

Q. Yes, I remember you pointed that out. Where is your book?—A. I have my cross-sections here.

Q. I want to see your book?—A. I did not know I was supposed to bring the book. These cross-sections have been plotted every month.

Q. I want to see the notes you made as you went along about the work?—A. The only notes were the elevations on top of each of these demarcations of classification.

Q. I would like to see what you wrote in that book?—A. I have not the book here.

Q. Where is it?—A. It is at the Chaudiere.

Q. Could you have it for to-morrow morning?—A. Yes.

Q. I want you to produce whatever books, whether you think they are of any value or not, that you kept, either on the work or in your office, respecting that cut; you understand?—A. Yes. You want me to produce any books in which there are notes in reference to this cut?

Q. Yes, no matter where they were made?—A. All right.

By Mr. Gutelius:

Q. We are now looking at cross-section at station 104. What does the top line represent?—A. Surface of the ground.

Q. What does the line about four feet further down represent?—A. The top of the loose rock or bottom of common excavation.

Q. So that the material between those two lines is common excavation?—A. Exactly.

Q. The distance from the line showing the bottom of the common excavation and the sub grade is practically ten feet?—A. Yes.

Q. What is the material between the sub grade?—A. It is loose rock.

Q. What are these pencil lines which I see in place of the red line slopes?—A. It shows the way the cut has been actually taken out.

Q. Was the cut taken out according to these dotted lines upon your instructions?—A. From the District Office, I think.

Q. So far as the contractor is concerned, he received definite instructions to remove this extra material?—A. Yes.

Q. Was that extra material wasted?—A. No, sir.

Q. Where was it used?—A. To make the fill—the previous fill.

Q. To make the fill just west of the cutting?—A. Yes.

Q. In classifying the extra material that was taken from the north side, where an extra width of 15 feet was taken, did the contractor receive classification for the material below the four foot line?—A. There was no classification at all in that extra width.

Q. What was the extra width classified as?—A. There was no classification at all there.

Q. How was it paid for?—A. Train haul material.

Q. At what rate was train haul material?—A. 45 cents.

Q. What rate was common excavation?—A. 27.

Q. What was loose rock?—A. 65.

Q. Did train haul material from this cut carry any overhaul with it?—A. No, sir, none at all.

Q. Refer now to the cross-section taken at station 124?—A. You tested this material.

Q. On this section I notice two dotted lines in ink, one located about eight feet four above sub grade, which is drawn practically level across the cutting; what does that line represent?—A. Well, it represented the top of my ledge rock here.

Q. What is the dotted line that we see at 12 feet 3 above sub grade?—A. This would be a line representing the fair average of what would be really the top of the ledge rock.

Q. The material between these two lines you classified in your return as assembled rock?—A. Yes.

Q. And now you say that the upper line would be a fair average for the top of the ledge, had there been no assembled rock classification?—A. Exactly.

Q. The material from 12.3 elevation to 31.2 was classified as loose rock?—A. Yes.

Q. If there was no such term as assembled rock, your classification would be the same as you have now put in?—A. Yes.

By the Chairman:

Q. The correctness of your return, then, of solid rock depends upon whether or not you have correctly measured the ledge in that cut?—A. Yes.

Q. Show me the cross-section of the cutting at 7.8 near the farm crossing, station 415, I believe?—A. Here it is.

Q. By reference to the cross-section at station 415, which we have before us, I note the line of demarcation between the common excavation and the loose rock to be 1.2?—A. Yes.

Q. You remember when we visited this cut we dug into the side of it?—A. Yes.

Q. Near the road crossing?—A. Yes.

Q. My memorandum is that there was 3.1 feet of common at the crossing. We opened the north side and found that the loan extended one foot only from the surface of the ground to clay?—A. Yes.

Q. What I want to question you about now is the degree of hardness of that clay: could that clay, in your opinion, have been ploughed, broken up by a plough, hauled by six horses?—A. By what I know of this clay, which is about the same as in the next cut also, it could hardly be ploughed that way, unless it was all shot before.

Q. Was this clay shot?—A. No, but I mean in order to be ploughed by a team of six horses, or whatever it is, it would need to be shot first, broken up by a shot here and there, and it was tried.

Q. You tried to plough it?—A. Not in this cut. This was taken out by a steam shovel, but the second one was tried, and this is what they had to do all the time.

By the Chairman:

Q. They had to shoot it occasionally?—A. All the time: they had to shoot all the time before ploughing it.

By Mr. Gutelius:

Q. Where did you spend your earlier life before you went to college?—A. Well, I was in college nearly all my early life.

Q. Were any of your summers spent on the farm?—A. Very little. My college was in the country.

Q. Where you would see ploughing?—A. Yes.

Q. I would like to go into the mechanics of ploughing with you for a minute, and compare the point of a plough with one of the teeth of a steam shovel. You are familiar with the teeth of a shovel?—A. Yes.

Q. And you are familiar with plough points?—A. Not as much. I have not used them myself.

Q. Never saw a plough point?—A. I have seen them, yes.

Q. Suppose I said to you that it was ten times as hard to force one tooth of a steam shovel into certain material as it would be to force the point of a plough into that same material, what does your judgment as an engineer tell you?—A.

It is not exactly the same thing; one is pushed into it, while the other is drawn into it; it has some of the edge over it that cuts all the time, while the teeth of a steam shovel just dig in and afterwards lift.

Q. Are you familiar with the term "work" in mechanics—resistance overcome?—A. More or less.

Q. What I am driving at is the mechanical work forcing one big four by four steam shovel point, four inches in width, into a material, as compared with forcing the point of a plough, probably an inch and a quarter, or may be less, with a less taper, into that same material? What ratio do you say would be fair as to the amount of work—that is, resistance overcome—in the movement of these two tools through a given material?—A. I should judge it would be harder on the steam shovel than it would in the case of the plough. It is not exactly the same work: it would not be the same work at all.

Q. I am trying to get the comparative scale reading in the two cases?—A. It would be harder on the steam shovel.

Q. How many teeth are in the steam shovel?—A. Four, I think.

Q. So that it is fair for us to say at least that each tooth would be equal to one plough?—A. Oh, yes, easily.

Q. Now, did the lift of the steam shovel appear to you to be as great as the 24 horses would pull, when taking that material?—A. I have not looked at that. I did not examine it in that light: I believe so, the way the steam shovel acted there, compared to the other work done.

Q. What steam pressure do they use in the steam shovel?—A. I could hardly tell you.

Q. Did you ever study much mechanical engineering?—A. Not very much.

Q. It would be useless, then, to go into the steam engine or the steam shovel with you?—A. Probably.

Q. Does it not strike you that twenty-four horses pulling on a wire cable over a sheave at the top of a cut would easily pull up that shovel, assuming that that sheave above is properly rigged, and we just hook that on the steam shovel to haul it, to put the bucket up—just to give the bucket a yank?—A. Drag the bucket through the ground?

Q. Yes, drag it right through and make a shovel full? It is only power I am at?—A. Yes, I understand. They would do it very easily, I think.

Q. Then it is fair for me to deduce from that, that one team of six horses would pull a single plough through this material?—A. Yes, this argument would so indicate, but it is not exactly the same point of view for me. Of course, I did not catch it exactly at the beginning. Now, I see your point, but to me the teeth of the steam shovel and the point of the plough is not exactly the same thing. It would not stand the same resistance in being drawn through or pushed into the ground. In another case, you see the tooth of a steam shovel would lift or break some solid rock sometimes, while I do not think any plough would do it: so that it would not be the same thing at all, and I never tried to compare and find out how horses would do it on the line.

Q. Do you feel like backing off from those statements that we have used in leading up to this?—A. Yes. Well, I said at first it was not, in my opinion, the same case. It is hard to compare the two.

Q. Would a steam shovel ever lift rock, one tooth in the rock, that 24 horses would not lift?—A. Well, as a rule, we have always worked four——

Q. I said 24 horses?—A. It is not the same comparison.

Q. One tooth does all the work when they cut in a rock, probably?—A. Sometimes.

Q. And they have the whole power of the steam shovel on that one tooth?—A. Yes.

Q. Supposing we put the 24 horses on one tooth or one plough?—A. Yes, it would. The one tooth of the steam shovel would lift some rock.

Q. And so would 24 horses lift it?—A. Yes.

Q. In your own engineering judgment you think that the power of a steam shovel is not any greater than 24 horses could pull?—A. Oh, yes.

By the Chairman:

Q. It looks bigger?—A. And I believe it is bigger.

By Mr. Gutelius:

Q. That the steam shovel is bigger?—A. No, but I think that the horse power would be more than that.

Q. But you do not want to divide the steam shovel up and put it back into the earth and plough it?—A. No.

Q. Tell me about the place you tried ploughing in that character of clay?—How many horses were on the team?—A. Well, they had four horses. Sometimes, when it was well broken, when they could succeed in breaking it well, they only put in two horses, and, of course, being well broken, they succeeded in working it; but sometimes they could succeed just as well without blasting; as a rule, they would have to put in four horses, and, as a rule, the four horses would not work.

Q. It is cheaper to use powder than to put on four horses?—A. Yes, because they could not work it; besides, owing to the width of the cut, and all that, they could never take it out.

Q. Supposing we take that clay, and, just for a test, we put six horses on the plough to tear one furrow through, and we take that one furrow through, breaking it up, and the contractor said—and you agreed with him—that ploughing won't pay: "we will have to shoot that cut":—is that about the way?—A. No, no, it was not on account of whether it was paying or not; they had to do it.

Q. There are clays on your district that six horses would break up with a plough, that had better be removed by blasting, are there?—A. Well, besides clay, there is also boulders in that clay.

Q. I am thinking of that clear, clean, sedimentary clay that we encountered at that crossing?—A. Well, as I said that day, it was not exactly the condition of the clay as it was at the time it was taken out; the clay was far harder than it was then.

Q. As a test, could six horses have dragged a plough through it?—A. Not successfully.

Q. By successfully, you mean get the plough through?—A. Yes, get the plough through and remove some of the material.

Q. Not the removal of the material, simply the plough test. Could the plough have been dragged through and broken up the material with six horses?—A. It might have taken some material here and there, at odd places.

Q. Do you think you could have gotten a fairly decent furrow some places half-way through the cut?—A. I do not think so.

Q. One furrow?—A. You see they would not have taken very much material out of it some places, and they would have to come up on top of it, or the thing would break; that part of it was shot very often; the plough would break.

Q. You were on the work—A. Yes.

Q. And saw all this thing going on?—A. Yes.

Q. You are under oath now?—A. Yes.

Q. And we must assume you are giving us the facts as you think—A. Yes, from my knowledge and experience.

Q. And that is your idea of that clay?—A. Yes, because, as I say, there were also boulders in it.

By the Chairman:

Q. I want you to describe to me what sort of plough they used?—A. Well, it is a regular grading plough.

Q. I want you to describe it to me: was it a plough you would plough a field with?—A. No, there is a great difference between the two.

Q. What is the difference?—A. I do not know how to describe it, although, if I would see it, I could tell you exactly which was which. It is not the same. It is iron. The fore part of it is not the same as in the other case.

Q. It is just a sharp piece coming down?—A. Yes.

Q. Do you know what a share is?—A. No.

Q. It is the thing that turns the furrow over?—A. I believe in the ordinary field plough they have something round like this, while the other one is straighter.

Q. That is the round plough that turns the furrow all the time?—A. Yes.

Q. That is the share?—A. Yes.

Q. They have no share on this?—A. No.

Q. And it was simply a plough with a piece of steel coming down that entered the ground and broke it up?—A. Yes.

Q. There were how many horses attached to it?—A. They tried it different times with four horses.

Q. They never tried it with six?—A. No.

Q. Then they had not a plough that would stand the pressure that six horses would put on it, without breaking?—A. No, with four horses it broke several times.

Q. So the plough was no good?—A. Well, the plough was good, because they always had repairs made and had new ones.

Q. Four horses would break the plough before it would go through the material?—A. Yes.

Q. What would six do to it?—Six horses, if the plough were strong enough, might quite easily draw the plough through the material, if the plough would not break, but if you have a plough that will break, you cannot plough any material?—A. No.

Q. This was a grading plough fitted for four horses and not for six?—A. I do not know if it was fit for four or six.

Q. I mean designed for four horses; could they have hitched six horses to that plough?—A. I do not know what you mean.

Q. Did you ever see six horses hitched to a plough—A. Yes.

Q. How are they; put on tandem?—A. No, I have not seen six horses with that kind of plough.

Q. Did the horses go four abreast? Or two and two?—A. They were two and two.

Q. So that two horses were ahead of the plough and two horses were hitched on in front?—A. Yes.

Q. What did they do? How did the front horses, the leaders, exert their force on the plough? A. I do not remember exactly how they were hitched up; this was five years ago.

Q. You say they were put tandem?—A. Yes, they were put tandem.

Q. And they may have been hitched up, so that really it was only a two-horse pull?—A. No, they had chains.

Q. Was there a chain through from the plough to the leaders?—A. I do not remember how they were fixed.

Q. Why were those horses brought on the work at all with that plough? They brought them there, did they not, because they thought they could plough the ground?—A. Yes.

Q. They already had the experience of the big cut?—A. No, they never worked in the big cut.

Q. But the contractor had already taken out part of the big cut?—A. No; the work was done in that other part by sub-contractors, and just about the time they were starting the big cut—

Q. This work was done by a sub-contractor who did not take out the big cut? —A. No, he did not.

Q. And the sub-contractor went on the ground, and did he try to plough the surface?—A. Yes, they started to plough on the surface.

Q. And did he plough the surface?—A. Yes, that was easy to do; part of it was two feet—

Q. That country is a farming country?—A. Yes.

Q. And is farmed all the way along your Residence?—A. Nearly, yes.

Q. It is an old settled country?—A. Yes.

Q. And this right-of-way runs through farms which have been cultivated for years?—A. Yes.

Q. And the surface, therefore, has probably been ploughed many times?—A. Yes.

Q. So he had no trouble to plough the surface?—A. No.

Q. How deep would his plough go?—A. Oh, six or seven inches; eight inches at the most.

Q. How many lifts did he take off of six or seven inches by ploughing?—A. After they first took out six or seven inches, he had to shoot before he could remove the material.

Q. You do not want us to believe you cannot plough that ground out there after you get down six or seven inches in the soil?—A. But it is not only clay there.

Q. I am speaking of the ground. You do not mean us to understand that you cannot plough that ground after you get down six or seven inches?—A. I do not think so.

Q. You do not think you could plough it?—A. No; that is, the way it was there you could not do it.

Q. It was ploughed on the top?—A. All the stones and boulders were removed from the top.

Q. Is the ground too hard, after you get down six or seven inches, to plough it?—A. Yes.

Q. You know that at station 124 there is a road crossing?—A. Yes.

Q. And you saw them making excavation for abutments for a new bridge? —A. Yes.

Q. That excavation was down about ten feet on each side of the railway? And it had been taken out last fall?—A. Yes.

Q. And the contractors or workmen are now taking out material which had fallen into the cut last fall?—A. Exactly.

Q. Did you see these holes taken out when it was originally done?—A. Yes.

Q. How did they do it?—A. Mostly pick and shovel.

Q. It was a pick and shovel proposition from beginning to end?—A. Pretty nearly.

Q. They did not use any powder on it?—A. Not all the time.

Q. They did not use any that you saw?—A. I do not recollect it.

Q. I am asking you for your knowledge? So far as you know they did not use any powder on it?—A. No, sir, not that I know of.

Q. And it went down ten feet into the ground?—A. Yes.

Q. And the ground in that is the same as the ground you are speaking of? —A. No, sir, it is not.

Q. The ground in that is the same as the ground in the big cut?—A. Yes.

Q. So that they could take out with pick and shovel the ground in the big cut for ten feet down?—A. Yes.

Q. The place you are speaking of where the plough test was is the cut where? —A. Oh, it is past the place where you stopped the other day.

Q. I am asking the mileage?—Here it is on the profile. It is ten feet deep in places.

Q. Take it all through, it is not more than four or five feet deep?—A. About six feet deep.

Q. We stopped and went into that, did we not?—A. No.

Q. Did we not stop there?—A. No.

Q. You returned this solid rock as part massed rock and part ledge in the big cut?—A. Yes.

Q. And how long were they taking out the big cut called the Chaudiere cut? A. They started in 1907 and finished last year.

Q. Did you return it all the time as part ledge and part massed material? Did your estimates show, during all that time, that it was part ledge and part massed material?—A. No, sir.

Q. When did you stop returning it as massed material?—A. It was always returned as solid rock.

Q. You did put it in as massed material?—A. Not in my estimate, only in my cross-sections. It was just for my own information.

Q. Does this show the Chaudiere cut?—A. Yes, sir.

Q. In the Chaudiere cut you show massed material or assembled rock 20,570 yards?—A. Yes.

Q. Where did you get that figure?—A. From my cross-sections here.

Q. You seemed to think it was massed material when you made up this return in April, 1912, did you not?—A. Yes.

Q. What made you change your mind about it?—A. I just drew those two lines—

Q. Here you have put this down here this spring as a correct return for this Commission?—A. Yes.

Q. And you have called it there massed material?—A. I was always under that impression. I have worked it on my sheets that way.

Q. You say that in your cross-section you show it as massed material, and you say that in your estimates you do not show it as massed material. Now, in your books did you put it down as massed material?—A. No. Everything is worked on those forms on these sections.

Q. You have reduced it to an exact number of yards. Where did you get the 20,570 yards, when you put it down in this return on the 25th April, 1912?—A. Well, that was between the two lines.

Q. Do you mean to say you made up this return for us without looking at anything except the cross-sections?—A. Yes.

Q. What good is it?—A. I just told you at the beginning that I made a mistake in doing it that way, because it should not be.

Q. As a matter of fact, your returns would not agree exactly with your cross-sections for all sorts of material, would they? For example, if you had surface boulders, you would have to go into some other record?—A. Oh, yes.

Q. Well, then, you would look into those records?—A. Yes.

Q. In those records you show the quantities that you returned from time to time?—A. Yes.

Q. Why did you not look into these records to see what quantities you had when you made up this return?—A. I do not understand very well your question.

Q. You sat down in your office, or some place, to make out this statement for this commission, did you not?—A. Yes.

Q. What did you have before you when you made out that statement?—A. Just my cross section sheets and my estimates.

Q. Your estimates brought to your mind the fact that you had no massed material in this section?—A. Yes.

Q. Why did you put down massed material in this return?—A. Because when I made out that statement I also checked my sheets, in order to find if my

total return was correct, and so forth, and the total of my estimates was made out of these two amounts, ledge rock as shown on my sheet as being ledge rock, and also as shown on my sheet as being assembled rock.

Q. You mean your cross-section sheets?—A. Yes.

Q. You know that was incorrect?—A. Well, at the time I did not pay special attention to it, because, as it is shown on my section, the upper line represents the fair average, and that is why, on account of that—

Q. When you sat down and made out your cross-section, you made out the cross-section in the office, did you not?—A. Yes.

Q. What did you have to make out your cross-section from? What information did you have in writing?—A. Well, I had levels taken by my instrument man, and also special notes I had.

Q. Your instrument man thought there was assembled rock in there?—A. No, he just took the elevations of the cut as it was at the time, and from his notes I figured exactly how much there was of ledge rock.

Q. Why did you place that line on that sheet showing that there was four feet of massed material in that cut?—A. From my own notes and observations.

Q. Your own notes and observations led you to the conclusion that there was 20,000 yards of massed material?—A. I would like to refer back to the explanation I have given.

Q. Is that right?—A. There is no assembled rock in the cut: it could not lead me to believe there was massed material.

Q. Why did you carry that all through those sheets?—A. As I said before, it was all the way the cut was taken out.

Q. You know what ledge rock is?—A. Yes.

Q. You saw that for a mile or two miles there was not any assembled rock, but you show it in this sheet of yours in 13 places?—A. I said I made a mistake in returning that.

Q. That was your first experience?—A. It was not only done by me: it was also done by the Divisional Engineer.

Q. You put down on your cross-section a great quantity of assembled rock? A. Yes.

Q. You had a superior that went over it?—A. Yes.

Q. Did he examine the cross-sections?—A. Yes.

Q. Did he look at the cut?—A. Yes.

Q. What did he say about that assembled rock?—A. That is just the thing.

Q. What did he say, if anything, about the correctness of the cross-section?—A. Well, I was supposed to take the levels—

Q. I did not ask what you were supposed to do?—A. I was instructed—

Q. Tell me what your superior said when he saw that you had made a cross-section showing assembled rock?—A. He approved of it, because it was done under his advice.

Q. Did he look at the open cut?—A. Yes, sir.

Q. Did he say there was in that open cut some massed material?—A. No, sir.

Q. Did you look at the open cut?—A. Yes.

Q. Did you see massed material?—A. Yes.

Q. I mean before you made your cross-section?—A. No.

Q. How did you find out the depth of the alleged rock in there?—A. By levels.

Q. You cannot take levels of ledge rock that is buried before it is uncovered, can you?—A. Well, no, we take them after it is uncovered.

Q. After it is uncovered you know how much material there is about the ledge rock?—A. Yes.

Q. You are sure of it?—A. Yes.

Q. No mistake about that?—A. No.

Q. You knew at that time where your sub grade came?—A. Yes.

Q. And you knew that your sub grade came at a given number of feet above the top?—A. Yes.

Q. And you had taken all the top off down to solid rock?—A. Yes.

Q. You knew how many feet of solid rock there was under you, if you went to sub grade?—A. Yes.

Q. Your superior officer was with you?—A. No, he was not with me every day when I took those lines, or when my men did.

Q. He was on the line when the solid rock was uncovered?—A. Yes.

Q. How could you and he make any mistake about the depth of the solid rock when you had the cut open, and knew how much material was above?—A. When we first struck the top, it was a flat surface from one end to the other: so when we first struck it, we took it by points, probably a foot or two, probably more: the steam shovel would make a rock cut, and she would take part of those tops off, and, in order afterwards to be able to work the steam drills, they had to take out another two or three feet of a cut, in order to get to the flat surface of solid rock which they could drill with a steam drill, and, in order to find out exactly how it was standing, the steam shovel would come and make the rock cut, taking out the juttings, and we took the level on top of that. There were points of two or three feet that were taken out at the time, and I took that line, showing the top of my assembled rock, and after a while the steam shovel would come back, and after she would shoot two or three feet, she was able to take that out to a depth of two or three feet sometimes, and make another rock cut, all of top of solid rock, no pockets or juttings: it would be flat surface, and that flat surface is shown by my second line, and my top line shows the average of what could be the ledge rock.

Q. You took out the clay first?—A. Yes.

Q. Did they take the clay clean through the cut at first?—A. Well, half the cut.

Q. And did you make this section showing the solid rock after that took the clay out?—A. Yes.

Q. How could you make any mistake about it?—A. Well, there is no mistake.

Q. How could you get that idea in your head if all the ledge rock was taken out? How could you get it into your head there was any assembled rock?—A. The first elevation was taken a foot or so, or perhaps three feet.

Q. But you did not make your cross-section until the dirt was all off the rock?—A. When we took that elevation part of the rock was uncovered, and there was some clay or boulders, or loose rock, mixed together, lying below that line, but we wanted to find out exactly where that line should be located, and in the meantime we called it assembled rock, because it was juttings of rock and pockets of loose rock.

Q. You have no boulders returned in this at all?—A. No.

Q. Were there any boulders in that cut?—A. Yes, but I never could get any measurements of them.

Q. Why?—A. I had no rock inspector.

Q. Could you not estimate them? What did you return them as?—A. I did not return them.

Q. They did not get any money for them?—A. No.

Q. Any person who goes through and takes the trouble can measure that ledge?—A. Yes.

Q. Because it goes across the cut?—A. Yes.

Q. Has that cut ever been remeasured?—A. Well, I may say it was measured two or three times nearly every spring. It was measured every month, as the steam shovel would go down deeper.

Q. I understand that in your whole division there is no massed material?—A. No, sir.

Q. Also that in your Residency you have put in as solid rock only ledge?—A. Ledge and boulders.

Q. There is no boulder measurement here?—A. It is in the other cuts. I had no line for boulder measurement in that.

Q. You have nothing in as solid that is not either ledge or boulders?—A. No, sir.

Q. You have no mixed material?—A. Yes, I have some mixed material.

Q. Where is that?—A. In the far cut.

By Mr. Gutelius:

Q. Mileage 9?—A. Yes.

Q. 2,564 yards of mixed material?—A. Yes. You remember the place in the cut where we stopped. You remember there was 12 feet of rock.

By the Chairman:

Q. Where is this mixed material?—A. Mileage 9.

Q. What depth of common excavation have you given generally over your whole Residency?—A. Well, in some places I have as much as six or seven feet, and other places three feet and other places none.

Q. At 6.5 those are boulders, are they not? "This solid rock is all boulders?—A. Yes.

Q. Where is that shown on your sheet?—A. I have no column for boulders, and they are all shown together on the same line.

Q. Is it shown in assembled rock?—A. Yes.

Q. In that column what is not boulders?—A. This would be ledge rock and this boulders: 913 is boulders, 110 is boulders, 951, 596, 20, 117, and 124 all boulders. The 2564 is boulders and mixed material. 215, 14, and 411 are boulders.

Q. There is a very small quantity of boulders in your Residency?—A. Very small.

Q. Would there be much trouble to measure that quantity in two or three years?—A. Well, that was all taken out in the one year.

Q. Did you measure none of them?—A. Yes, it was measured by a rock inspector.

Q. They were all measured?—A. Except in that last cut there, which was finished only last year and that is returned as mixed material.

Q. What is that?—A. 2564.

Q. Were the boulders measured?—A. Yes.

Q. Did they go a yard or over?—A. Yes, in my judgment, they were all a yard, or very nearly a yard: according to the notes I have, they are all over a yard.

Q. Were they honestly a yard or over?—A. I think they were all a yard or over.

Q. Were they approximately a yard or over?—A. Yes.

Q. You have not given in any boulders in that measurement that are loose rock size?—A. No, sir, not in those measurements.

Q. You say there was 500 yards of mixed material?—A. Yes.

Q. Is this mixed material made up of clay and loose rock size boulders?—A. No, over loose rock size, by the yard.

Q. If they were over loose rock size, why did you put them in as mixed

material?—A. At that place the boulders were not measured: so we had all the percentage of them.

Q. Why did you now allow them as boulders?—A. This rock and mixed material, of this amount of 2564 there is about 500 yards of boulders and mixed material.

Q. How much mixed material without the boulders is there in there?—A. Of this 500 yards there would be about eight per cent of the mixed material.

Q. Why did you not put it in as boulders then?—A. Well, they were boulders, but I cannot say they are boulder measurement. All the others I have measurements for.

Q. I cannot understand why a man who thought there was only this small percentage of mixed material should not put them in as boulders, because there seems to have been very little material in between them?—A. They are all in as boulders.

Q. No.—A. Those 2,500 yards are all boulders, including the 500 yards I am speaking of.

Q. According to you, practically there is, in your Residency, put in as solid rock nothing but boulders of approximately a yard or over, and ledge rock?—A. Yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT TRANSCONTINENTAL OFFICES, QUEBEC, AUG. 19th, 1912.)

STANLEY HAWKINS, sworn:

Q. How old are you?—A. Twenty-seven.

Q. Where were you educated?—A. Shrewsbury, England.

Q. What experience in engineering work did you have before you came on this work?—A. Three years pupil at Litchfield, in England, and one year with a London firm, Griffiths Bros., general contractors.

Q. Your first railway experience was out here?—A. Steam railway, yes.

Q. What position did you first occupy in the employment of the Transcontinental?—A. Topographer.

Q. And you grew from topographer to what?—A. To Transit man, and from Transitman to Resident Engineer.

Q. You were Resident Engineer on Residency 7 during its construction?—A. Well, not entirely. I was on Residency 5 for two years, and most of the grading, excepting the yard, was done when I came there.

Q. Most of the grading, excepting the yard, was done on Residency 7 before you took charge of it?—A. Yes.

Q. Can you tell me what the 242 yards of solid rock consisted of in the cut at mileage 102.5?—A. I think of measured boulders. I simply find those cuts on notes that I took over when I took the Residency.

Q. So that from your actual experience you do not know?—A. No. That work had been graded a year when I came up there.

Q. What cuts in this list are you familiar with—the work which has been performed?—A. 105.

Q. Monk yard?—A. Yes, and 107.5. I think that is all the cuts that were taken out while I was there. These others were all finished.

Q. 105 refers to the grading at Monk yard?—A. Yes.

Q. It extended from mile 104 to mile 106?—A. Yes, almost to mile 106: about mile 105.7.

Q. The quantities I find on your profile are for the east end of this excavation?—A. Solid rock ledge 5596, solid rock 27,544, loose rock 30,500.

Q. And at the west end?—A. At the west end solid rock 48,284, loose rock 45,966.

Q. The item of 27,544 yards shown as solid rock consisted of what kind of material?—A. Boulders by measurement.

Q. Boulders about a cubic yard and over?—A. Yes.

Q. And contained no other material?—A. Oh, no, solid rock only. How do you mean contained no other material?

Q. This measurement contained nothing but boulders?—A. No.

Q. The solid rock at the west end of the cut, which consisted of 48,284 yards was all measured boulders about a yard or over?—A. Yes.

Q. And the solid rock was ledge rock?—A. Yes.

Q. In the cutting at 107.5 we have solid rock—A. 2,525, loose rock 13,200.

Q. What did that solid rock consist of?—A. Boulder measurement.

Q. I have a memorandum here that there should have been a quantity of common excavation in that cutting. Were there not some pockets of common excavation?—A. Well, there was a good deal of earth on the top, but the boulders protrude all over. I do not think you could take any place extending 50 feet where you would not find a boulder protruding above the ground, and, of course, many more within a foot of the ground.

Q. How was that cutting removed?—A. With a steam shovel.

Q. In removing a cut of that character with a steam shovel, would it not be fair and proper to classify loose material, even in pockets, as common excavation?—A. Well, I think depending on the size of the pocket. This cut at the most two feet below the ground would be classified at the least loose rock, apart from the boulders projecting above.

Q. In the top two feet there was some common excavation, if the boulders could, by some means, have been removed?—A. Oh, undoubtedly.

Q. Would it not have been fair to show some common excavation in that?—A. No, sir, I do not think it would.

Q. You told me it was removed by steam shovel, so that the boulders and the loose material would fill the shovel just in the same way; the shovel would be filled easier as the quantity of loose material increased?—A. Yes.

Q. Still you think it would not be fair to give him any common for that?—A. No, I do not think we could have done it.

Q. Would not the boulders that you refer to roll into the shovel?—A. No, not more than a foot below the surface, because the material down there was pretty stiff hardpan.

Q. If the stiff hardpan extended to the surface, your argument would appear to be right, but this top two feet—A. I did not say two feet. I say a maximum of two feet.

Q. Well, the top foot to two feet, where it has been loosened up each year by the frost, makes easier work?—A. Yes, undoubtedly.

Q. Don't you think that if you had been classifying by the book closely that you would have been compelled to put some common in that?—A. Well, I certainly would not have classified, even the top of that, as straight common—I mean if the whole cut consisted of that—because in many parts it did consist of straight loose rock.

Q. If the whole cutting had consisted of the same material as the top one foot, how would you have classified it?—A. Without any boulders.

Q. The same as it is now, supposing it extended down to sub grade?—A. Well, I would have classified it with a large percentage of common.

Q. Then to be consistent you should classify a small percentage of common in that one foot?—A. Well, I think in usual practice it would not be done.

Q. But, to how close to the line, you would have to give some common?—A. Yes. I think if that top foot had been sheered off from the rest of the cut that it would have been classed as common excavation, to a great extent.

Q. So that in classifying that top as all loose rock, you were liberal to the contractor?—A. Yes, I am willing to admit that, although I do not think liberal beyond ordinary—

Q. That memorandum shows 500 to 100 yards as my guess, as I went through there. in a cut of 13,000 yards: one per cent or less. Would that have been unfair?—A. No, I think not.

Q. Would you not like, before you finally decide not to put some common in there, to look over the ground again?—A. No, sir I would not, and I do not think you would be of the same opinion as you are if you were to note that material back from the face, where it has not been under the effect of the weather for two years.

Q. That statement does not coincide with what you have just told me?—A. No. I was willing to admit there was a certain amount of common excavation on the top, but I would not like to say exactly.

Q. When I offer you an opportunity to look it over and correct it if you find necessary, you say no?—A. My feeling is that if I were classifying this cut again on this specification, either on a Government, or any other road, that I would turn it in the same method.

Q. In the face of what you told me a moment ago?—A. Yes, I am willing to admit there is common excavation in pockets, and a very thin layer of common excavation extending over the whole surface.

Q. And still you do not give any?—A. Well, I think it would be measuring very very closely, a good deal closer than the general practice.

Q. I conceived a very good idea of you as an engineer on the work, and I do not want to spoil this by passing judgment in advance. I am going to ask you, in view of what you have said, and what I think is consistent, to go over that cut again with Mr. Goodwin?—A. Yes, and I am quite willing to go over it with any man who has the experience Mr. Goodwin has.

Q. And, between you, come to some conclusion in connection with it. Remember when you are doing that, that you have committed yourself to a principle: that is all?—A. Exactly.

By the Chairman:

Q. In the Monk yard you are now excavating, on the north side of the yard the water tank is situated?—A. Yes.

Q. I went along that ditch?—A. Yes.

Q. Were you with me?—A. Yes.

Q. Did we see any boulders of a yard in size up there in that ditch?—A. No.

Q. Have you classified any of that yet?—A. In that ditch, yes.

Q. What have you classified it as? Can you tell me your classification for that ditch?—A. I have not the figures here.

Q. Is there any solid in it?—A. Yes.

Q. How do you make any solid?—A. Boulders.

Q. There were none a yard?—A. No. we did not see any, but we saw remnants of boulders that had been shot.

Q. I think we saw two?—A. I think we saw more than that.

Q. Did you show me more than two?—A. Well, it is a question I would not like to answer.

Q. I want you to answer it?—A. I think I did.

Q. How many shots were put into boulders in that ditch?—A. That I could not say.

Q. How long ago is it since it was done?—A. Within the last six weeks.

Q. Have you a record of the powder used in that ditch?—A. No.

Q. Will you on your oath say there was more than two boulders that were blasted in that ditch?—A. Oh, I am quite sure of that.

Q. I suppose if they were blasted there are remnants of them there now?—A. Well, the remainder is embedded in the side of the ditch, but not the rest of the rock, because that has been crushed.

Q. The ditch is open?—A. Yes.

Q. And a boulder must necessarily extend in that ditch more than across it, because it is only a foot and a half or two feet?—A. Yes.

Q. So there must be some remnant of boulders there now?—A. Yes.

Q. How much of that ditch did you put in as solid?—A. 15 per cent.

Q. And you arrived at it how?—A. By the classification of the part of the cut adjoining it.

Q. Did you arrive at it by classifying anything more than boulders as solid?—A. No, on boulders alone.

Q. It would have been a very easy matter to have made an accurate classification of the ditch, would it not, so far as solid was concerned?—A. It would if one had a man on the ditch all the time.

Q. You were there all the time?—A. I was on the Residency.

Q. You were there, or there was somebody representing you all the time that ditch was taken out?—A. Not all the time. I was down there three or four times a week.

Q. Did you ask them how many boulders they shot?—A. No.

Q. Why did you not? Was it not their duty?—A. Who could I ask? The foreman?

Q. Yes.—A. The foreman's answers are usually not of much consequence.

Q. They are not reliable?—A. No.

Q. Was there anybody else there?—A. Yes, an inspector, the only man I had representing me at that time was the inspector on the buildings.

Q. If you had asked that foreman how many boulders of approximately a yard or more were in that ditch, and he told you, you could check them up by looking over the remnants of them?—A. Yes, pretty close.

Q. So that you could have had no trouble in finding out, as a matter of fact, how many boulders there were in that ditch; is that not correct?—A. Yes.

Q. Then we will go to the yard. How long has the face of the north side, just next to the ditch, been in its present condition?—A. Since last October.

Q. Has no excavation been going on up to that face since last October?—A. No.

Q. Are there any boulders to be seen there approximately a yard in that face?—A. Yes, there are several exceeding a yard.

Q. How long is the face?—A. About 1100 feet.

Q. Is not all the stone that was taken out there piled in a place there?—A. Out of the yard, oh, no.

Q. Out of that portion of the yard, is there not a large pile of stone there?—A. There is a pile of stone taken out of excavation; that is the foundation excavation in the bottom of the yard.

Q. I am not speaking of the foundation excavation; is there not a pile of stones there taken out of what was the excavation to make the level of the yard?—A. No.

Q. What became of that stone?—A. In the dumps.

Q. It is put in the dumps?—A. Yes.

Q. Is the face a fair example of what the yard was?—A. At that point, yes, I think it is; not of the whole yard, but taking it all along, with the adjoining classification, it is.

Q. What percentage is there there of boulders that are over a yard?—A. You mean on the face?

Q. Yes?—A. Not very many on the face; a great many have been removed.

Q. How much on the face?—A. Do you mean how many boulders?

Q. What percentage is there on the face of boulders of upwards of a yard?—A. I should say not ten per cent.

Q. How much per cent did you classify solid in that yard?—A. Ranging from 15 up to 45.

Q. Where did you find boulders that would justify you in putting it 45 per cent?—A. In various parts.

Q. Where, for example?—A. Chiefly on the south side, and from the south side to the north side.

Q. Did you classify any massed material there?—A. No.

Q. All boulders?—A. Yes.

Q. Do you remember my talking to you along the yard about the massed material?—A. Yes.

Q. Now, at 105, the Monk yard, I was talking to you, was I not, about a ditch which was back of the station?—A. Yes.

Q. Did you not tell me, when we were talking of this ditch, that you had classified as solid rock part of the material of this ditch because it was cemented material?—A. No.

Q. You did not tell me that?—A. No.

Q. You swear that?—A. I swear it, yes.

Q. Did you not show me the bank where there was a stratum of stones, all loose rock size or smaller, which you had classified as assembled rock?—A. No, sir.

Q. Or which you had classified as solid rock?—A. No.

Q. You did not say that to me?—A. No.

Q. Then I imagined it when I wrote it down?—A. I certainly did not say that. I explained to you that that ditch did not come in the same classification as the yard. There were two classifications.

Q. Did I not ask you, pointing to some stones which were there, about the classification, and did you not show me the bank, where there was a stratum of stones of loose rock size which you had classified as assembled rock?—A. No.

Q. You did not do that?—A. No. We did not have a yard of assembled rock in that yard.

Q. Well, as solid rock?—A. No, sir.

Q. Then you will swear that you did not put stones which were loose rock size in as solid rock?—A. Certainly.

Q. Did you not say that where the stones in assembled rock were small, about as large as one's head in size, that you would not classify it all as assembled rock, but would give a greater proportion of assembled rock under the Lumsden instructions?—A. Yes, sir, I said that.

Q. At 106.2—A. I think you are getting into a cut I did not classify.

By Mr. Gutelius:

Q. In the excavation for the foundation of the engine house at Monk, what classification are you giving there?—A. It is a straight price.

Q. What is that price?—A. 90 cents.

Q. How is the 90 arrived at?—A. Bidding on the estimation. It is a second contract and tender.

Q. Is it not a fact that you, by your experience in a portion of that excavation, concluded that it would be fair and right for all of it, to classify it as 20 per cent solid on account of the boulders, and 80 per cent loose?—A. Throughout the yard?

Q. Yes?—A. No, sir.

Q. Did you change your classification according to sections that you took across the yards? Were there variations in the classification in various portions of the yard, as you have gone along?—A. As shown on the sections, no. We show in any note we took at the time of any boulder measurements, the positions and by the color; we have the date and color on the plan of the yard. Our progress was shown on the plan rather than on the profile.

Q. So that you are perfectly frank when you tell us that you believe that 20 per cent of the solid rock shown in the Monk yard was represented by boulders about a yard or over?—A. Yes. The boulders were so thick in some parts that we discussed seriously putting in massed rock, but it was only in sections, and we decided to take it by measurement.

By the Chairman:

Q. You did not classify any massed material?—A. Not on that particular cut.

Q. Did you anywhere on the place?—A. I have, but not on this Residency.

Q. On what Residency did you do it?—A. Residency 5; that is further east than we went.

Q. Tell us what you did there in classification? You classified ledge rock as solid?—A. Yes.

Q. And you classified some mixed material as solid?—A. Yes.

Q. Was there a large quantity of it?—A. Yes, a fairly considerable amount.

Q. Did you classify any boulders there?—A. You mean on boulder measurement?

Q. Yes?—A. Yes.

Q. Did you classify under mixed material boulders of a yard and upwards?—A. In the massed material?

Q. Yes?—A. No, sometimes less than a yard.

Q. I am not asking you about less. I am asking you about more. Were there any big boulders in the massed material?—A. Yes, but we did not measure them individually.

Q. Did you classify them separately from the massed material?—A. Oh, no, with the massed material.

Q. Where is that?—A. Mile 136.

Q. You have two cuts here at mile 135.3. How much have you in there of massed material?—A. A line, roughly approximating 7 to 10 feet—oh, well, more than that: to 15 feet at the lower part of the cut.

Q. How is it shown on the cross-sections?—A. By lines.

Q. It is shown as massed material?—A. Yes.

Q. Is the cut all taken out now?—A. Yes, it has been taken out three years.

Q. How much massed material is there in there? These are very big cuts? A. Yes.

By Mr. Gutelius:

Q. About 25 per cent?—A. Something like that.

Q. 20 to 25 per cent?—A. Yes, about that: it is two years ago: I should think about that—not of the whole cut, but of the total rock returned about 25 per cent.

Q. Describe the material?—A. Well, it consisted of boulders from 15 cubic feet up to 30 or 40 cubic feet, up to 2¼ yards: from half a yard to 2½ yards. Some

of them have less than a half a yard, and a pretty stiff binding material, not exactly blue clay, but a sort of indurated clay. It is rather difficult to describe it.

Q. It is clay?—A. Oh, yes, it is clay. Woods agreed at the time he came there—

Q. Never mind Woods; it is clay?—A. No, I do not like to say it is clay; it is material that is clay when it is wet, but friable when it is dry.

Q. When it is dry, what is it?—A. It is pretty friable.

Q. Sand?—A. Yes.

Q. It is a mixture of sand and clay?—A. Yes.

Q. What proportion of sand in it?—A. Very small proportion: just enough to make it friable when it dries out: about 20 per cent.

Q. What proportion of this clay is there in that mass?—A. Not exceeding 20 per cent.

Q. What proportion of big boulders is there in that?—A. Boulders over a yard—possibly not more than ten per cent—not more than ten per cent of boulders exceeding a yard.

Q. Of approximately a yard?—A. I say the boulders were very uniform in that country, remarkably so.

Q. Boulders that would go 24 feet?—A. Say 20 feet.

Q. We will say 24: what would the percentage be?—A. 20.

Q. And 20 feet, what would there be?—A. 40 or 45.

Q. You say the percentage of boulders of 20 feet and upwards would be about 40 per cent?—A. Of the mass, yes.

Q. And there would be 60 per cent of smaller boulders and cementing material?—A. Exactly. I think that is as fairly as I can put it. There would be about 40 per cent of various sizes down to 20, and below 20 feet, and including binding material, probably 60 per cent.

By Mr. Gutelius:

Q. That is 60 per cent of the mass, if separated, would be that sandy clay like material, and boulders of loose rock sizes?—A. Yes.

By the Chairman:

Q. Or less?—A. Or less, running down even to gravel. Here is a photograph showing the cut I am talking about. (Exhibit A.)

By Mr. Gutelius:

Q. Is that description which you have given us for the material less than solid rock size fair for the material which you have classified as massed material or assembled rock? Does that give you a good idea of your assembled rock when the boulders are taken out?—A. You mean of the percentage remaining?

Q. Yes?—A. Yes, I think that is fair. Of course, I am speaking from memory.

By the Chairman:

Q. This material was taken out in Residency 5 in the winter time?—A. The work was begun in November and finished in the following August.

Q. It was taken out in the winter time?—A. A lot of it.

Q. Did you allow anything for frost?—A. No.

Q. Do you know whether any frost was allowed as solid rock?—A. Yes, not on this district.

Q. On work you have been on?—A. Yes.

Q. On the Transcontinental?—A. Yes.

Q. Where was it?—A. Up on District E, north of Nipigon.
Q. Can you locate it?—A. The exact Residency, yes, it was Residency 9.
Q. How long were you there?—A. One year.
Q. Did they allow all the frosted material?—A. I am just speaking of material I turned in myself. We laid one off-take to a muskeg.
Q. Off-take?—A. The off-take to a muskeg, and we removed the mass about two feet, and had to chop the rest out with hatchets down to grade, and we allowed that by putting a rod in it by actual measurement as loose rock.
Q. Not as solid rock?—A. No.
Q. So you were up there for a year, were you?—A. Yes.
Q. This material in Residency 5 which you have been telling us about, and the quantity that was taken out in the winter, and you took photographs of it,—that was in February 1909?—A. Yes.
Q. And it shows the men working there with a pick, I think, does it not?—A. Yes, with picks and bars.
Q. Was that stuff shot on District B?—A. Yes, that was shot with black powder.
Q. The boulders appear there in the cut: apparently the men took out the materials surrounding the boulders, and then, after they got the material out, they attended to the boulders?—A. Yes: they are removing the boulders with a stone boat and the rest of the material with a car.
Q. What size are the boulders shown in the photograph at station 6782? Are they loose rock or solid rock size?—A. These two boulders in the fore ground are solid rock size.
Q. Then all the boulders through that cut were treated after they had taken out the excavation?—A. Yes, they were loosened up.
Q. So that they could be counted?—A. Oh, yes.
Q. Did you count them?—A. No, sir.
Q. Why not?—A. How could I possibly do it? I had about 25 places running that winter. I could not keep a man in every place.
Q. You do not have to do that. On a Government job a boy can do a man's work. A boulder measurer can attend to five miles, can he not?—A. He could not get all the boulders.
Q. He could attend to five miles and count the boulders?—A. No, not getting all the boulders.
Q. How many miles could he attend to?—A. And get the boulders?
Q. If you employ a man as boulder measurer, you employ him to measure boulders. How much distance would it be reasonable to put one man on Residency 5?—A. Not more than at the most two miles.
Q. Over the whole Residency?—A. No, on parts of it.
Q. How many miles are there in your Residency?—A. Twelve, well, I am speaking of the heavy part of the Residency.
Q. Then how many boulder measurers would it take for the whole Residency? A. Do you mean to measure all the boulders?
Q. What do you suppose? I do not mean to measure something that was not boulders. I mean to do what he is sent there for, to measure or approximate the boulders in that Residency that were upwards of a yard?—A. The Residency might be covered with three men, one man to two or three miles and two men on the rest.
Q. How many men were there in that winter?—A. My own staff?
Q. Yes?—A. Four or five, excluding the cook.
Q. I mean engineers or assistants?—A. Yes.
Q. What were the four or five men doing?—A. Cross-sectioning and doing a lot of work in the office and laying out culverts, to see the culverts were built.

Q. In the field how many men were there?—A. They were in the field the whole time, excepting myself; I was not in the field the whole time.

Q. These men could have measured the boulders?—A. It was the time-keeper who had—

Q. But those men could have measured the boulders: they were spread over the twelve miles all the time?—A. No, sir, they could not measure boulders and attend to their work.

Q. Why not?—A. They might be working on a curve and be on the cars.

Q. If these men had been doing nothing else but measuring boulders, they could have measured all the boulders that were there?—A. No.

Q. If they had been doing nothing else?—A. No.

Q. Why not?—A. Not unless a man stayed in the cut the whole time.

Q. But if they stayed in the cut?—A. Oh, yes, if they stayed in the cut they could.

Q. How long would it take a day for a man to measure up the boulders that were exposed in a mile?—A. It would take him the length of time he would take to walk over the Residency and probably ten to twenty minutes in each cut.

Q. How did you arrive at your boulder measurement as a fact?—A. By taking them two to three or four times a month, having a man in there in the morning and in the afternoon, and dividing the day between two cuts.

Q. And what you found in the distance of how much?—A. I do not understand.

Q. You send a man in on a given day into a cut?—A. Yes.

Q. What would he do?—A. Measure the boulders and the amount of cars going out that day, and the number of cars going over the dump, and the amount contained in that material, and that material was estimated by the size of the cars, whatever they contained, and then work out the percentage.

Q. He would only stay there a short time?—A. No, he would be there a morning.

Q. About how much would they take out in the morning?—A. They might put out a big cut like that one we were looking at possibly 200 yards.

Q. In the morning?—A. Yes, if they were working a big cutting.

Q. In the morning; that is all the time he would stay there, you know?—A. Yes; I should think they would take out up to 200 yards.

Q. Then he would count the boulders in that section out of which the 200 yards was taken?—A. Exactly.

Q. And then he would say "Well, 200 yards of material contains so many boulders, which amounts to, say, 20 yards, and he would put that in as ten per cent boulders?—A. Yes.

Q. And he would allow, till the next measurement, ten per cent boulders?—A. Exactly. I commenced measuring boulders without measuring the yardage going out at the same time, but the results were useless, because it was impossible to know how much yardage was going out at the same time.

Q. Did you classify on any other Residency on Mr. Doucet's District than you have told us of?—A. No, only on 5 and 7.

Q. Did you classify on any other district on the Transcontinental?—A. Yes, on E.

Q. What Residency?—A. 9 and 8.

Q. Whose contract was that?—A. O'Brien, McDougall and O'Gorman, agents for M. P. and J. T. Davis.

Q. The contract is right above Lake Nipigon?—A. Yes.

Q. Contract 18?—A. No, contract 17.

Q. What sort of material is there there?—A. Chiefly ledge rock, or sand or muskeg.

Q. No clay there?—A. Yes, there is a good deal of white clay, too, not containing rock.

Q. How did you classify the clay up there?—A. On a percentage of loose rock and the remainder common, averaging about from 20 to 60 per cent of loose rock.

Q. In the winter you classified all the frozen material in what way?—A. In the winter we classified frozen material on its merits, without considering its condition at all. It is only perpetual frost we classify.

Q. In the summer you classified frost which never went out of the ground?—A. No, I do not think it amounts to more than 2,000 yards.

Q. How long had the right of way been cleared before the excavation was taken out?—A. In these particular ditches?

Q. In this perpetual frost district?—A. We usually found the frost in the off-takes in the woods.

Q. Did you allow any frost as loose material on the right of way?—A. I did not personally, but I believe it has been allowed in ditches and many places, opening up ditches in June and early in the year.

By Mr. Gutelius:

Q. Is there much perpetual frost back from the right of way?—A. Up there a tremendous amount, not more than a foot from the surface.

Q. As late as September?—A. Yes; that means all the year around, you know.

By the Chairman:

Q. The fact is that the frost stays in where the forest and moss has not been removed, that as soon as they remove it the frost disappears?—A. I think it is the moss.

Q. Removing the forest and moss?—A. The moss extends to two feet before you come to the real muskeg.

Q. But on the clay, does the frost remain the year around, where there is thick forest and moss?—A. Yes, it does; not so much on the clay as on the muskeg. As a rule, the clay under the moss is not frozen after the middle or end of June, but in the muskeg it seems to stay in longer.

(N.T.R. INVESTIGATING COMMISSION, EVIDENCE TAKEN AT TRANSCONTINENTAL RAILWAY OFFICES, QUEBEC, AUG. 19th, 1912.)

ADELPHIS O. BOURBONNAIS, sworn:

By Mr. Gutelius:

Q. How old are you?—A. Thirty-two.

Q. What railway work did you do before you were employed on the Transcontinental?—A. I worked on the Chateauguay and Northern Railway.

Q. What were you doing there?—A. Rodman.

Q. When did you first have employment on the Transcontinental?—A. In 1906.

Q. You have been Resident Engineer since when?—A. Since 1907.

Q. What Residency did you have?—A. Fifteen.

Q. You had been on that all the time?—A. Yes.

Q. That extends from mileage—A. 12 to 24.

Q. Your whole Residency is on a supported four-tenths grade?—A. Yes.

Q. There is a fill from 20 to 24—A. Yes.

Q. Would it have been possible to have moved the line a little under the hill and secured a grade without any fill?—A. I do not know, sir; it is quite flat ground.

Q. It never occurred to you that a change of position of the line would have reduced the quantities?—A. I do not think it would reduce it very much, because it is very flat ground from 12 to 22.

Q. In the cutting at station just west of mileage 22 you had 199 yards of solid rock material; what was that stuff?—A. In the bottom of the cut there were some boulders and there was some shale.

Q. And the shale added to the boulders made the 199 yards?—A. Yes, sir.

Q. You have three Residencies?—A. Yes, I have now, but not since the start.

Q. Your Residency now extends to where?—A. Up to 47.

Q. You remember the cutting at 29.6?—A. Well, you see it was all done when I came there. I came there in July, 1910. That cut was finished in July, 1909.

Q. You noticed the openings that we made in the side of that cutting?—A. Yes, sir.

Q. What was the character of material that we got out of that hole?—A. Well, I think that it is assembled rock.

Q. Why?—A. Because it was pretty hard to take out.

Q. Pretty hard material?—A. I tried to take off some stone with my hand, and it was pretty hard stuff, pretty sticky together.

Q. Suppose we took that material as it laid in the ditch and classified it, after it was dug loose, was there anything that you would call solid rock?—A. You mean supposing we cleaned the ditches now?

Q. No, the excavated portion, what was lying on the dump there, when it was pulled out there and laid on the dump?—A. Then it would be like loose rock.

Q. Loose rock and common excavation?—A. Yes.

Q. There were only about one or two pieces that you would think of calling solid rock after it is taken out?—A. Well, yes.

Q. Lepage was ahead of you there?—A. Yes, he was.

Q. Suppose that you had never heard of the term, assembled rock, and take the specifications and contract as they were handed to you, could you have called the material excavated from these two holes that we made in the bank there solid rock?—A. I think I would have classified it as solid, according to our book specification.

Q. Why could you do that?—Was it solid rock?—A. Well, because they could not handle that stuff without blasting all the time.

Q. Does not the specification say "Solid rock that requires blasting"? It says it would include rock.—A. Which may be best removed by blasting.

Q. "All rock which may be best removed by blasting?—A. Yes.

Q. Could you call that rock?—A. Well, it is mostly rock. It is all boulders and clay.

Q. It is mostly stones?—A. Mostly stones and boulders, and between those boulders it is that blue clay.

Q. Supposing the specification had read "Solid rock which may be best removed by blasting", then what would you call it? Supposing the specification read "Solid rock excavation will include all solid rock in ledges or masses of more than one cubic yard", then could you call that solid rock, in the judgment of the engineer? In other words, it is not solid rock: it is not stone?—A. Well, in that particular cut there were stones bigger than one cubic yard.

Q. But it is not all solid rock, all one lot of stone?—A. Well, no, it is not all a big lot of stone.
Q. It is made up of a great many small stones?—A. Yes.
Q. And sand and clay?—A. Yes.
Q. And small stones and a few big stones?—A. Yes.
Q. And because it was hard and had to be blasted you would call it solid rock?—A. Well, that is the only difference.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

Harricanaw River, June 7th, 1912.

To The Investigating Commission.

Gentlemen,—

I hereby request that the following figures be substituted for the ones given you last evening in giving evidence before you.

Total Approx. Quantity classified by me..... 821,797 Cu. Yds.

Classified as follows:—

Solid Rock	Approx. Quantity.....	23,341	" "
Loose Rock	" "	381,601	" "
Common Excavation	" "	416,855	" "
		821,797	

In order to have same admitted, I herewith attach an Affidavit duly declared.

I have the honor to be,

Witness: Your obedient servant,

JAMES McG. RUTHERFORD. GEO. A. BUTLER,
Division Engineer No. 3-C.

I, Geo. A. Butler, hereby solemnly swear that the foregoing statement is correct to the best of my knowledge and belief so help me God.

Sworn before me at the Village of Harricanaw, in the Co. of Temiscamingue, June 8th, 1912.

N. McCUAIG, J.P.

GEO. A. BUTLER.

NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATION COMMISSION.

Before GEORGE H. LYNCH-STAUNTON, K.C., *Chairman.*
and MR. F. P. GUTELIUS, C.E., *Commissioner.*

EVIDENCE TAKEN ON THE TRAIN ON THE N.T.R., BETWEEN STATIONS BEAVER DAM AND ROBINSON'S LAKE. JUNE 6TH, 1912.

GEORGE ALBERT BUTLER, sworn—

Examined by Mr. Staunton:

Q. What is your age?—A. Thirty-seven.

Q. Where were you educated?—A. Deseronto High School and Queen's University.

Q. What experience have you had in construction work?—A. I was on the T. & N. O. in the capacity of instrument man. I was leveller on location on the T. & N. O. Railway. I was transit man on location on the Transcontinental.

Q. How long were you on the T. & N. O. roughly?—A. About three years.

Q. After leaving the T. & N. O. you came on the Transcontinental as transit man?—A. No, I was chainman and transit man on the Ontario Land Survey work before I came on the T. & N. O.

Q. What experience have you had since on this line?—A. I was transit man on location, and I took charge of the parties, and from the charge of the parties I was afterwards in charge of division work. I was in three different Residencies, and from that I was moved up to Division.

Q. What were your duties on the Residency?—A. Full charge of the work, practically the same as division, except that, instead of having three or four different men on in the Residency, you have the whole work. You control the work.

Q. What is a Residency?—A. It covers ten miles of work. You have charge of the construction and grading.

Q. And the classification?—A. Subject to the Divisional Engineer.

Q. But you are the first classifier?—A. Yes.

Q. You classify the work in the first place?—A. Yes.

Q. Subject to his endorsation, approval or correction?—A. Yes.

Q. You had three Residencies; where were those?—A. I had two Residencies; on this road there was Abitibi and South River.

Q. What are the numbers?—A. 9 and 17.

Q. After you got through on those Residencies you did what?—A. I came to Davey Lake.

Q. Is that where you are now?—A. Yes.

Q. What is that?—A. It is a Residency and there is a division there.

Q. What division?—A. Number three.

Q. Have you the sole charge of that division?—A. Yes.

Q. And your official position now is what?—A. Divisional Engineer.

Q. Have you had sole charge of that division since the work began on it?—A. Yes, I have, with the exception of about three months.

Q. And what was done in those three months?—A. I do not understand the question.

Q. Was there any grading done up to the time you came on it?—A. No.

Q. Then you have had the supervision of the excavation, filling and grading? A. Everything in connection with the work.

Q. Since that time?—A. Yes.

Q. And that includes all the excavation, filling and grading that has been done?—A. Yes.

Q. You have classified, then, all the work?—A. I have, subject to the approval of the District Engineer, who was with me.

Q. In classifying that work, had you the contract and specification before you?—A. Yes. Of course, I had read it over.

Q. You knew what it was?—A. Yes.

Q. The classification of the grading is regulated by sections 33, 34, 35, 36 and 36a of the general specifications; that is correct?—A. Yes.

Q. You classified your work, then, after you had seen these specifications? —A. Yes.

Q. Solid rock excavation, according to 34, will include all rock found in ledges or masses of more than one cubic yard, which, in the judgment of the Engineer, "may be best removed by blasting." Have you classified as solid rock excavation any rock which could be removed without blasting?—A. No.

Q. Then all the solid rock excavation classified by you, in your judgment. required blasting?—A. Yes.

Q. Then, with regard to loose rock: have you classified as loose rock and stones and boulders measuring less than one cubic foot?—A. Not to my knowledge.

Q. You did not intend to so classify, if you did?—A. No.

Q. You have, I suppose, classified as loose rock all loose rock, whether in situ or otherwise, that could be removed by hand, pick or bar?—A. Yes.

Q. Have you found any cemented gravel?—A. Yes.

Q. What do you mean by cemented gravel?—A. You take small stones, any sized stone that is cemented together like a paste—it is just like a conglomerate.

Q. Could you break them with your hands?—A. No, you would have to use a blast or pick.

Q. They were mortared together?—A. Yes, that is it.

Q. You have not classified anything under the head of cemented gravel which was not cemented together?—A. No.

Q. "Indurated clay and other materials" is another head of loose rock. Have you classified any indurated clay as loose rock?—A. It all depends on the interpretation of "indurated".

Q. It says here "indurated clay". Have you classified anything which you called indurated clay as loose rock?—A. Yes, I have.

Q. What have you classified as indurated clay?—A. I considered indurated clay was clay that was hardened, practically a mass, not soft, wet, or spongy stuff, but hard, en masse.

Q. Which could not be ploughed behind a team of six good horses?—A. Not in my judgment.

Q. You say the indurated clay which you have classified as loose rock in your judgment could not be ploughed behind a team of six good horses, properly handled? —A. That is right.

Q. Have you classified as loose rock any clay which could be ploughed with a ten-inch grading plough behind a team of six good horses, properly handled?— A. Not to my memory.

Q. Did you intentionally do so?—A. No. It was not my intention to ever classify anything as loose rock that was not loose rock; that is, I did not intentionally do so.

Q. You classified a certain quantity of clay as loose rock?—A. Yes.

Q. Why did you classify that clay as loose rock?—A. Because I considered it hardened material, and what I considered came out of the classification as loose rock—that is my interpretation of it.

Q. What clay comes under the classification of loose rock?—A. I considered this hardened clay did.

Q. Why?—A. Under the indurated material.

Q. Did you classify clay as loose rock?—A. Just clay alone?

Q. Any clay? Did you classify anything you would call clay as loose rock?—A. Yes.

Q. Why did you classify that clay as loose rock?—A. Because I considered it came under clause 35 as indurated clay that could not, in my judgment, be ploughed with a ten-inch grading plough behind a team of six good horses, properly handled.

Q. You did not consider whether or not, after it was ploughed, it would cost the contractor more or less to move it?—A. It never entered my mind at all what the cost to the contractor was. I considered it purely from my point of view, on behalf of the railroad.

Q. And whether or not the contractor could, or could not move it, was no concern of yours?—A. No.

Q. It was no concern to you in your classification?—A. No.

Q. Did you ever make any experiment with a ten-inch grading plough behind a team of six good horses to find out whether the clay which you classified as loose rock could be so ploughed?—A. No.

Q. How did you then form your conclusions that it could not be ploughed?—A. Well, I have seen horses working with the ploughs, not up in this country, but I have seen them down at home. That is my only reason.

Q. You have only seen horses working on a farm?—A. Yes.

Q. You never saw six horses working?—A. I think I have seen six; I would not be positive about that. I have seen ploughing done for scraper work on most of the jobs on which I have been concerned.

Q. Have you seen it done with six horses attached to a ten-inch grading plough?—A. I am not sure about the ten-inch grading plough, or what sized plough.

Q. Have you seen six horses on a plough for scraper work?—A. No, I would not swear to that. I would not like to say I have ever seen six horses at work, although I have seen four.

Q. Were you ever instructed to make such a test?—A. No, I was not.

Q. Were you ever supplied with appliances to make such a test?—A. No.

Q. Then I may take it from you that you had no instructions or appliances with which to make a test, and it was simply left to your judgment, without making tests, to conclude whether or not it could be so ploughed?—A. Yes, that is right.

Q. If that clay which you classed as loose rock could be ploughed by the team described in clause 35, your classification is wrong?—A. According to the specifications it would be.

Q. You are sworn here, and I want to know, have you made your classification independently and honestly and to the best of your ability?—A. I have.

Q. And you have not sought to give this classification any strained interpretation?—A. No.

Q. But you have interpreted it as you have stated to me in your foregoing evidence?—A. Repeat that.

Q. You have not given, in your classification, any other interpretation to clause 35 than that which you have already stated to me?—A. To the best of my knowledge, that is true.

Q. Have there been any other materials classified by you?—A. Common excavation.

Q. Any other materials classified by you as loose rock?—A. No, that is the only two.

Q. Can you tell me how much material you have classified on your division?—A. Approximately 47 per cent.

Q. But I am asking you the total classification. On your division how much material have you classified? Give me the total first?—A. Approximately, 257,497 yards.

Q. Of that material, how much was solid rock excavation?—A. 5,642 yards.

Q. How much loose rock?—A. 158,746.

Q. How much common excavation?—A. 93,109 yards.

Q. What was the price paid for solid rock excavation?—A. $1.75.

Q. And for loose rock?—A. 65 cents.

Q. And common excavation?—A. 34 cents.

Q. When you come into these muskegs filled with roots and vegetable matter. have you classified any of that as loose rock because of the trouble in cutting through the roots and so forth?—A. No.

Q. You could call it all common?—A. All common in that case.

Q. Have you classified any soft clay or soft material as loose rock because the horses could not work through it?—A. I might have; I could not answer that question fully.

Q. Do you remember of any?—A. Yes, I think I have; I believe I have.

Q. Do you recall any instance?—A. I could not state the quantity.

Q. Can you state where it was?—A. A cut at station 3001 to 3034 plus 50; I would state approximately ten per cent.

Q. On the cut at the place described you classified ten per cent as loose rock. What was that material?—A. It was what I would call like a gumbo. It is impossible to put teams on it without first corduroying it.

Q. How was it taken out?—A. It was taken out by the car, but you have to keep working back into it.

Q. How did you take it out?—A. With cars.

Q. How did you take it out?—A. Working against a face, backing cars up against it.

Q. Pick and shovels?—A. Yes.

Q. Pick and shovel used to load it on to the car?—A. Yes.

By Mr. Gutelius:

Q. Did it require to be picked out?—A. Yes, it came out in little chunks like.

Q. You could not take it out with a shovel?—A. No. In some cases they did take it out that way, but they could only take little chunks like that.

By Mr. Staunton:

Q. How much would that amount to in yards?—A. Approximately, 1200 yards.

Q. You call that gumbo; is it a clay?—A. Yes.

Q. Is it the grey or black clay?—A. It is a greyish color; it is more like a hardened sponge.

Q. But there were no roots or anything of that kind in it?—A. No, this was in a cut.

Q. I was asking you whether you had taken anything full of roots, like this stuff outside the window, and classified any of that?—A No: I thought you were back in the cut.

Q. You told me all the material you put in as loose rock?—A. To the best of my knowledge.

Q. Did you ever classify clay of the kind you have been speaking of, on any other road than this, as loose rock?—A. We never had the same classification on any other road.

Q. You have not worked under a specification like this at any time before?—A. No.

By Mr. Gutelius:

Q. You never classified clay such as this as loose rock before this job?—A. No.

By Mr. Staunton:

Q. What did you classify it as on other jobs?—A. Hardpan.

Q. What were they paid for hardpan as compared with loose rock?—A. There was no loose rock; it was common excavation, hardpan and rock; they did not recognize it at all.

Q. What were they paid for hardpan in what you have in mind?—A. If my memory serves me right, 45 cents.

Q. Where was that?—A. On the T. & N. O. I would not swear to that figure.

Q. Was it the same material as this?—A. I would say so.

Q. But they made a contract, in that case, to pay for hardpan, as you recollect it, somewhere about 45 cents?—A. Yes; that is an approximate figure, to my knowledge.

Q. You told me the cost of moving this material did not influence your classification?—A. That is right.

Q. Was any of your classification raised by any of your superior officers?—A. In what way?

Q. Did you ever return any material classified under one head that they put up to a higher classification?—A. You mean by a direct order, ordering me to do it?

Q. Any way, directly or indirectly?—A. It is a pretty hard question to answer. By consultation I was advised.

Q. What to do?—A. It was simply brought to my knowledge. My district engineer went into the material thoroughly with me.

Q. How did you classify it?—A. In some cases there was no difference; in some cases I was a little lower.

Q. Can you tell me a case of that kind?—A. No, because there was only very little of the work done.

Q. State it your own way?—A. There was one classification, if my memory serves me, in which the classification was raised approximately 20 per cent over what I classified it.

Q. By whom was it raised?—A. By Mr. Molesworth's authority.

Q. Who was he?—A. District Engineer.

Q. Did he inspect the work?—A. Yes.

Q. With you?—A. I was with him. He considered that I was too low.

Q. Was that in the beginning of the work?—A. No.

Q. How had you been classifying when he did that?—A. There was over 50 per cent of the work done—approximately 50 per cent.

Q. Did he raise the common excavation?—A. No.

Q. What did he raise?—A. The cut was in progress. I was classifying on that basis in progress, and he said that my classification was not high enough, considering that material, and after consultation with me—at least after I consulted him—and the cut was taken out I decided he was right. That is the only case I know of.

By Mr. Gutelius:

Q. You changed from common excavation to loose rock, what was equal to 20 per cent of the cut?—A. Yes, approximately.

Q. And you agreed with him, before the cut was taken out, for the same reasons that you have given us heretofore?—A. Yes.

By Mr. Staunton:

Q. What did he point out to you that changed your mind?—A. I was probably a little harder at that time. I thought I should be more strict, and we had the specifications there; at least, we read the specifications over again, and I interpreted it that way, according to the way I answered here to-night.

Q. You have given the contractor 20 per cent the best of it ever since, have you?—A. No, just this particular cut I have reference to; I remember it was a small cut.

Q. And the material in it was clay?—A. Yes, clay.

Q. Had you ever been classifying that same clay lower?—A. On progress work we always classify lower.

Q. Then what did you do?—A. Then on the final we always keep under, in case we have made any mistake in the calculation.

Q. Then you may raise it?—A. Yes.

Q. Have you your original data that you made at the time?—A. I would not be positive.

Q. You copied this book from your data?—A. Yes, that is taken from the office.

Q. On the work what did you have with you, going out taking classification? A. I would go over the work with the resident engineer, and take notes, and advise him what I considered, and we would consult together.

Q. But when you were out by yourself?—A. I always go with the resident engineer.

Q. When you made your classification?—A. Yes.

Q. Before Mr. Molesworth came there, who had been with you before that? —A. Nobody.

Q. You say you always went with somebody?—A. But nobody superior to me.

Q. Had he always been with you when you classified the fifty per cent that was classified— A. Mr. Molesworth is the district engineer. I always go with the resident engineer.

Q. How do you arrive at your measurements?—A. How do you mean?

Q. The quantities?—A. You mean on the ground?

Q. Yes?—A. By cross-section.

Q. You cross-section?—A. Yes, every time.

Q. You do not make any guess work?—A. No, everything is measurement.

Q. And you keep your cross-section in writing?—A. Yes, we have them all on record.

Q. You have them all now?—A. All in book form and also in the original sheets: they will be sent in to you very shortly.

Q. So that the original sheets show the measurements you took and the cross-sectioning you did right on the ground?—A. Yes, to the best of my knowledge they do.

Q. They were intended to show it?—A. Yes. The resident engineer takes the cross-sections.

Q. He does the work?—A. Yes; I am divisional engineer, and I do not take the cross-sections; the resident engineer does that.

Q. The resident engineer and you together go on a particular piece of work for the purpose of making the classification?—A. Yes.

Q. When you go on that work for that purpose, do you take any measurements to ascertain the quantities?—A. No, except that I simply check his figures in the office.

Q. Then he is responsible for the quantities?—A. Yes.

Q. And you are responsible only for the classification of the quantities he gives you?—A. Yes, that is all.

Q. And you do not cross-section or do anything?—A. No.

Q. Did you ever have occasion to check up any of his measurements?—A. Not yet, because I have no final estimates yet.

Q. I do not understand that?—A. There has been no final estimates returned on the Residencies under me yet.

Q. Will you go over that and check it?—A. If I suspected anything—supposing the cut would show too large a quantity according to my view, I would remeasure his cut.

Q. So that you will, or you have examined the work and made up your mind whether, in your opinion, the measurements were correctly made?—A. I would not say that, because the final estimates are not in yet.

Q. But you will do that?—A. Yes.

Q. Did you sign the monthly and final estimates?—A. In every case, except I should happen to be absent, I think that was only once. I always looked over them myself.

Q. Had the resident engineer anything to do with classification?—A. Well, he would consult me. I am more in a consulting capacity.

Q. You mean you would consult him. He did not make the classification at all?—A. Oh, no, never.

(N.T.R. INVESTIGATING COMMISSION.)

June 7th, 1912.

WILLIAM D. ROBERTSON, sworn:

Examined by The Chairman:

Q. You are an engineer by profession?—A. Yes.

Q. How long have you been an engineer?—A. Well, I am a practical man, not a graduate, you know, but I have been practising round, surveying and engineering, since about 1888 actively. I was with my father before that as a youngster.

Q. Then you are an Ontario land surveyor?—A. No, I am a Nova Scotia land surveyor.

Q. How long have you practised your profession as an engineer in this province?—A. I came on the Transcontinental in March, 1905, I believe was the time, the first of March. The work started in 1904, and I came in 1905.

Q. Prior to that what were you engaged at?—A. The year before that I was in Labrador, timber land surveying; the summer before that, and previous to going to Labrador, from November, 1902, up till, I think it was some time in December, some time in the fall of 1904, I was on the Mabou and Gulf, both on location and construction, and previous to that, from July, 1906, till November, 1902, I was assistant city engineer in the city of Everett, Massachusetts.

Q. Since you have been on the Transcontinental what have you been employed at?—A. I went out the first year with Mr. Goodwin as instrument man. I applied for a party, but could not get it.

Q. You were a year as instrument man?—A. Yes, or nine months on that run, and I went to Ottawa, and Mr. Macpherson asked me if I could handle a party, and I said I thought I could, I had previously, and he said if Goodwin would recommend me he would send me out in charge of a party on location, and he did recommend me, and they sent me out in charge of a party up in the east end on District C.

Q. How long did you continue in that work?—A. Until I started in this division, May, 1909. They took me out of the bush; they sent for me up to Grand Lake Victoria to come down and take this division.

Q. What is this division?—A. Division 4c originally, and is yet.

Q. How big is your division?—A. 43.82 miles, something like that.

Q. And what is your position in that division?—A. Divisional engineer.

Q. And has the construction been under way ever since you took charge of the division?—A. Yes, sir. There was some clearing done when I came in here, but that was all.

Q. What have your duties been as divisional engineer?—A. General supervision and looking over the work, and instructing the resident engineers with reference to the work, and anything that came up that they wanted to consult me about.

Q. Under you what engineers are there?—A. In charge of Residency 15 is M. L. Guimont; in charge of 16 is T. C. Rousseau; in charge of 17 and 18, R. F. Smallian.

Q. Are there any other engineers subordinate to you in your division?—A. No, there are the instrument men who are under—

Q. But engineers?—A. No.

Q. Are there any engineers over you in this division excepting the chief?—A. Well, of course, I am directly under the district engineer, Mr. Balkam.

Q. Are you under any other engineer?—A. Well, I suppose under him and his assistants.

Q. Who have been the contractors in your division?—A. Foley, Welch & Stewart are the agents for the main contractors.

Q. The main contractors being the Grand Trunk Pacific?—A. Yes. They had all the work in my division, and Foley, Welch & Stewart were doing the work as their agents, I believe, and they sublet to others; the grading from the Okikidosik district to White Fish, they sublet to Hogan and Tomlinson, and they did a few miles further on themselves, and they sublet a couple of miles to John Linder & Company, and they did the next section themselves, and they sublet a couple of miles around Molasses River to Freeman, and they did the section beyond that themselves, till they came to Residency 15, and they sublet from this end of 15 to Robinson Lake to a fellow named De Sherburin, and a further section they let to Matt Point, and from there to the end, about a mile, they did themselves. Of course, in the camps on Matt Point's work they had a walking boss, and he overlooked all this work in the meantime. That is on the grading, of course. They have other subs on the piledriving and that.

Q. Have you had anything to do with the classification of the grading?—A. Yes.

Q. What were your duties in regard to classification?—A. When I first undertook to classify here, as I said this morning, the country was new to me, and the material was new to me. In the first estimate we gave we had not got very far into the work and we kept the classification down in our reports.

Q. But describe to me first your duties with regard to classification as divisional engineer?—A. Well, I went over the work with the resident engineers, to begin with, and the material looked pretty hard—

Q. What were your duties simply?—A. I used to go out and consult with the resident engineers with reference to classification.

Q. The resident engineers classified the work and you supervised it; is that it?—A. They referred it to me, and I approved or disapproved.

Q. So that the classification work is first done by the resident engineers, and then they sublet their classification to you for your consideration?—A. Yes.

Q. Are you constantly on the work over your division?—A. Well, from time to time, yes, mostly, sometimes twice a week and sometimes once, and sometimes once in two weeks, as the case might be.

Q. And all the estimates that are made by the resident engineers on your division are submitted to you for your approval?—A. The estimates come through my office monthly.

Q. All the classifications are submitted to you for approval?—A. Yes, they all come through my office.

Q. Have you any record available at this moment, to show the amount of classification in yardage that you have up to this date passed in your division?—A. I have not it at this moment with me. I have it in my office.

Q. Can you tell me approximately what it would amount to?—A. No, I would not undertake to.

Q. You could not give me any idea?—A. No.

Q. Into what divisions did you divide the classifications?—A. In looking at the material that was taken out, as I thought it should be classified.

Q. Under what heads did you classify it?—A. There was solid rock, common excavation, and item 5, which is loose rock or other material—I classified this clay as other material.

Q. What are the three classifications?—A. Solid rock, loose rock and common excavation.

Q. Are those the three heads under which you classified the grading?—A. Yes.

Q. What did you classify as solid rock excavation?—A. Large boulders and ledge.

Q. Large boulders and ledge rock?—A. Yes.

By Mr. Gutelius:

Q. Where is Mabou located?—A. In Cape Breton; they located a line from the Harbor to the Strait of Canso.

Q. How long is that line?—A. The road was constructed five miles.

Q. You classified that?—A. No, that was done by day labor; the company did that themselves.

Q. This is the first specification you ever worked on in railways?—A. Yes.

By Mr. Staunton:

Q. You know under the general specification classification is covered by clauses 34, 35, 36 and 36a; that is right?—A. Yes.

Q. You have read those?—A. Yes.

Q. And had read them when you made your classification?—A. Yes.

Q. What did you classify as solid rock excavation?—A. The ledge rock, boulders and assembled rock.

Q. What do you mean by that?—A. An aggregation of large boulders cemented together, as it were, with hard cement gravel.

Q. Do you mean cemented together so that they adhered if you lifted them up, and that they had to be broken apart?—A. No, sir, not necessarily broken apart. You might have to pry them out.

Q. Did they adhere to each other?—A. They adhered to the gravel.

Q. There was gravel between them, but the gravel was in a solid mass in which these boulders were embedded?—A. Sort of cemented together.

Q. What do you mean by that?—A. The particles would adhere to each other.

Q. Would the rock adhere to the particles?—A. It could be broken apart.

Q. Would it adhere to the particles?—A. Well, I cannot say positively that they would.

Q. Could I separate them with my hands?—A. I cannot say whether you could or not.

Q. Am I right in saying that the interstices between these two boulders might be filled up by loose material?—A. In some cases they might.

Q. You would not describe rocks as adhering together that only had loose material between them, would you?—A. No. The rocks would not adhere together, but they would be in such a way that they would proably be too heavy to handle without blowing.

Q. I understand the rock to be all right if it is the size, but what I want to get at is, when one speaks of a mass of rocks adhering, if you had the power to lift it all together, it would not fall apart?—A. No.

Q. It might come out from the other material?—A. It might come out from the other material.

Q. Then it is a misnomer to use the word adhering?—A. Well, it might be.

Q. It may be embedded?—A. It may be embedded in this cemented gravel.

Q. Is the cemented gravel en masse itself, or is it in disintegrated particles?—A. Some of it is so solidly packed together that you have got to blow it.

By Mr. Gutelius:

Q. You mean to shoot it?—A. Yes. Of course it separates. I do not know whether it is cemented together or not, but it is so hard and solid you cannot make much impression in it with a pick or bar.

Q. In any of this assembled rock that you speak of, it would be possible to take it down by means of pick or bar, if you worked out a face against it?—A. Yes, you might pull it down that way to a face.

Q. It would not be assembled rock unless it was in position so that you could pry out the rocks if you were working out a face?—A. Naturally you would pry them out, of course. It is not cemented in. It is cemented gravel, and to a face you might pry them out, but I think it would be just as cheap to blow them out—cheaper.

Q. To be assembled rock, as I understand you mean that it is rock masses separated by other material in such a manner as that you could take each of the particles or pieces of rocks out, if they were less than a cubic yard, by means of pick and bar?—A. You probably could.

By Mr. Staunton:

Q. You have stated, I understand, that large stones and boulders measuring more than a cubic foot and less than a cubic yard would be loose rock?—A. Yes.

Q. And all loose rock, whether in situ or otherwise, that may be removed by hand, pick or bar, you would call loose rock?—A. Yes.

Q. Then you have been describing to us cemented gravel, what you consider cemented gravel?—A. Well, there is cemented gravel in this assembled rock. There is a little in there that cements the assembled rock together.

Q. Besides that was there any other cemented gravel—any bodies of cemented gravel?—A. Just on one cut on my work, I think, which was east of Kakamenon, which was all cemented together.

Q. Then we come on the indurated clay; do you find indurated clay?—A. Well, there is indurated clay in most of these cuts.

Q. Was it in any large quantities?—A. Well, yes; the cuts were principally of indurated clay.

Q. Did you classify any clay as loose rock?—A. Yes, all that indurated clay.

Q. And you say that all these clay cuts are indurated clay?—A. Mostly all, all but a small percentage.

Q. How did you arrive at the conclusion that they were indurated clay?—A. Because it was hard and tough.

Q. Could that clay be ploughed behind a team of six horses properly handled, behind a ten-inch grading plough?—A. I have never seen it tried.

Q. In your opinion, could it be ploughed by such?—A. I do not know what condition it might have been in, or how it would work with a plough at all.

Q. In the condition in which it was before they commenced to remove it, could it be ploughed by such a team?—A. I cannot say whether it could or not.

Q. Then the question whether or not the clay that you classified as loose rock could be ploughed by such a team did not enter into consideration with you when you were arriving at your conclusion as to whether or not it was indurated clay?—A. No, I did not think it would be feasible to plough it. I did not think you could plough it in any shape you could handle it. You would have to cut it up after ploughing it. That was my opinion. You would have to cut it in long strips.

Q. Keep to whether or not it could be turned over in furrows by a ten-inch grading plough?—A. I doubt whether you could turn it over in furrows. You might cut it up in strips. I doubt whether it would turn over.

Q. What do you mean by that?—A. You might cut strips in it, but I do not know that you could turn it over; it was so heavy it would fall back, I imagine.

Q. What do you mean by strips?—A. Furrows.

Q. You could turn a furrow—A. You might cut a furrow, but I do not know that you could turn it.

Q. How could the plough proceed without turning it?—A. It would fall back after the plough.

Q. The plough is so constructed it turns it over?—A. It turns it on edge at the time, and if it is heavy and tough enough it will fall back.

Q. I thought it turned over after the plough passed?—A. Not always.

Q. Does the plough not turn it past the perpendicular?—A. Not always.

Q. Usually does it not?—A. In loose ground.

Q. Is the construction of the plough not such that it must do so?—A. It generally tips over on the other side.

Q. Is the construction of the plough not such that it must turn it past the perpendicular?—A. Well, the force of the plough turns it generally.

Q. I said the construction?—A. I do not think so.

Q. Do you know whether it does or not?—A. I have ploughed where the furrow has turned back on me, so that if the construction of the plough was such that it would have turned more than perpendicularly, I do not see why it should have turned back.

Q. That was ploughing against a hill side?—A. No; ploughing where there is wire grass the sod will fall down behind you, and you have to turn it over with a hoe.

Q. Do you say the clay we are speaking of would not turn over?—A. I question whether it would.

Q. You are not prepared to give an opinion on it?—A. No.

Q. You think a plough might cut through it?—A. I think a plough might cut through it.

Q. Have you any reason to think that that clay so far down as the frost line is not soft enough for ploughing?—A. I do not think it could be ploughed to advantage.

Q. That is not what I asked?—A. You might cut it with a plough; I think perhaps you could.

Q. Is it not ploughable so far down as the frost line goes?—A. It probably is: I never tried it.

Q. Is it not fairly soft, so far down as the frost line goes?—A. Not in dry weather; it is very hard.

Q. Is it not a fact that the surface does not bake on this ground?—A. It does bake.

Q. If any person says that the peculiarity of this clay is that it disintegrates, that portion of it which is exposed to the atmosphere, it is a mistake, is it?—A. I do not know that it is.

Q. Is it not apparent to our eye when we are going along the railway that at least the top surface is soft and will crumble up in your hand?—A. That is when it is taken out and exposed to the air?

Q. Yes, the top?—A. Yes, but you will find this clay on the top of the cuts, where it has not been touched, bakes.

Q. We are talking about where it has not been touched?—A. That is, on a slope?

Q. Yes?—A. There is always a moisture running down, a drainage, that keeps that moist.

Q. We are talking about it where it dries?—A. That is on the dumps; it will dry up in powder.

Q. It will dry up in powder?—A. Yes.

Q. The peculiarity of ordinary clay is that it bakes and does not pulverize?—A. I have seen this bake and crack on the top of these cuts.

Q. Is there anything different in this clay down to the frost line from any other clay?—A. Well, I have never seen clay just like this before. It is not like the clay I have been used to working. It is not as loose.

Q. In what does it differ?—A. It is more compact and harder.

Q. Did you ever see a clay in any other country that was loose?—A. Yes.

Q. Where?—A. Down in Nova Scotia, in road beds, and in the States, in sewage and excavation and that.

Q. You would not find it in Old Ontario?—A. I have never been through Old Ontario.

Q. What were the facts in connection with that clay that induced you to classify it as loose rock?—A. The fact that it was so hard and tough, I could not consider it common excavation.

Q. Could you not dig it?—A. You could separate it with a hoe, but it was very hard to separate, very tough and heavy.

Q. Can you not work into any of these banks with a pick?—A. Yes, but you cannot do much at it.

Q. Have you shown us any place where that is the case?—A. That place where you were this morning, I think you would get all you wanted to handle of it.

Q. All we saw of it was crumbling, was it not?—A. Yes, it was all on the surface.

Q. How far would I have to go in to get it?—A. Down below the frost.

Q. Down to the frost line it is crumbling, is it not?—A. It appeared to in some cases; it appeared to be this morning.

Q. And the frost goes in here about three or four feet does it not?—A. About that, I should imagine.

Q. On an average how deep are these cuts?—A. They average from 5 to 25 or 30 feet.

Q. But an average?—A. They average 18 and 20 feet.

Q. You mean that if you averaged all the cuts through this railway, they would average that?

By Mr. Gutelius:

Q. You mean your average maximum is 18 feet?—A. Yes.

By Mr. Staunton:

Q. But what would the average be?—A. About five feet.

Q. Would there not be a great portion of that which was, even in your definition, common excavation?—A. No; there does not seem to be much difference in the handling.

Q. It is not the handling I am speaking of?—A. It is the material and it is the handling that counts in the material.

Q. Is it the cost of the handling that influences you?—A. No, it is the difficulty in removing it.

Q. It is not whether or not it is ploughable?—A. I do not know whether it is ploughable; I do not know whether it is advisable to plough it.

Q. You have formed no conclusion as to that?—A. I do not think it would be. I think the stuff would just fall back in.

Q. I want you to tell me candidly; I want your real sincere statement?—A. I am trying to give it; I am on oath.

Q. I am not questioning your oath for a minute, but I want to know whether or not you had come to any conclusion as to whether this was ploughable, when you made that classification?—A. No, I do not think that a plough would be feasible.

Q. Did that determine you to classify it as loose rock?—A. Not that, no.

Q. You may be right, or you may be wrong; other people have told me that they considered it ploughable, and yet they did consider it was loose rock. They said that was not what influenced them. I want to know whether you are in that same category?—A. That did not influence me, it was the material as I found it.

Q. What did not influence you?—A. The fact that it could or could not be ploughed.

Q. That seems to be, so far as I have been able to hear, the position which most of the engineers have taken, that it was not a question whether it was ploughable or not?—A. No, that did not enter into it; it was the material as we found it.

Q. And if I had come along on that material with a six-horse team, and a ten-inch grading plough, and had managed to turn it over, ploughed it right along, you would not have changed your mind as to whether it was loose rock or not?—A. No.

Q. So that we may eliminate the question of ploughing from the consideration entirely?—A. I think so.

Q. What were the difficulties of handling which induced you to make it loose rock? I would like you to tell me?—A. Well, the fact that it was so heavy, sticky and hard to move; when you put it in cars, in dumping you had to shovel it out of your cars in some cases, as well as shovel it in. If you dumped your car it would stay there, and you had to go in and shovel it out, and I figured that material was not common excavation and could not be classed as such.

Q. I imagine you would say that this specification does not supply the proper test, in your opinion, for ascertaining whether or not it is loose rock?—A. No, because, you take muskeg, you cannot plough it, but it is common excavation. We could not return that as loose rock; we did not consider it loose rock, but you could not plough it.

Q. Did you classify any part of that clay as common excavation?—A. Yes, we considered a small percentage on the surface, and sometimes at the ends of the cut there would be a softer clay and easier handled: we watched them working it, and we found some places where it was rather light and easily moved, and in those cuts we gave a lighter percentage of loose rock than in others. We classified it as nearly as we could, according to our judgment of the material as we saw it taken out.

Q. About what percentage of the clay would you allow to be common excavation?—A. Well, we have allowed from ten to twenty per cent in the different cuts—I think from ten to twenty or thirty per cent—somewhere along there.

Q. With the net result that you did not allow, in the whole, more than four or five per cent of clay as being common excavation?—A. No. The percentage of loose rock is not that heavy in my division. I do not think that the percentage in my division of loose rock on the whole would be over somewhere between 85 and 90 on the whole division.

Q. How much would there be of solid rock?—A. It would not be that on the whole division; I am speaking of the cuts only.

By Mr. Gutelius:

Q. You were taking the lower classifications, in your view?—A. Yes.

By Mr. Staunton:

Q. The percentage of the two lower classifications?—A. Yes, on my work. It would be somewhere about 80 per cent in the cuts; that is not taking into consideration the muskegs.

Q. What percentage of the clay that has been handled on your division have you classified as loose rock?—A. I say about 80 or 85 per cent.

Q. Now, you remarked in the beginning of your examination that when the work commenced the resident engineers were classifying the clay low, did you not?—A. Yes; we went over together, and we decided to keep it low, for this reason: it was the time all these investigations were going on, and the District Engineer told us that, to begin with, we would have to keep our classification away down; we were told that, and we went out and classified very low. We knew we were classifying low the first estimate, and from time to time—

Q. What did you classify this clay as then?—A. We gave them a small percentage in each cut. Where we give them 80 per cent to-day, we just gave them about 25, just enough to keep them quiet. We expected an inspecting commission to come up and say that we were right in our higher classification. We submitted to it till then, for their approval, and we held it till then, and when they did come up, I classified with the resident engineers as we came to each cut, and in most every case it was approved of.

Q. By whom?—A. The district engineer and the G.T.P. man.

Q. Who was the district engineer?—A. Mr. Molesworth.

Q. And who was the Grand Trunk man?—A. Tomlinson. In some cases the contractors wanted higher classification. Swenson was on the work and was representing Foley.

Q. Who ordered you to classify the clay low?—A. Mr. Wetherby said to keep the classification in the returns down until such time as it was approved of.

Q. Who is Wetherby?—A. Assistant district engineer to Mr. Molesworth.

By Mr. Gutelius:

Q. Was Wetherby with that party when you took the trip—A. No. Wetherby was not on the trip.

By the Chairman:

Q. How much did you classify low in the way you have described it and afterwards changed?—A. Just on the first two Residencies the work had been going on, 17 and 18.

By Mr. Gutelius:

Q. How many months' classification?—A. Oh, the thing had been hanging for about seven or eight months before we got down to a settlement on the classification.

By the Chairman:

Q. So that you had a large amount to re-classify?—A. Yes, in some cases; and in some cases we raised. In the new Residencies I started the classification up where I thought it ought to be.

Q. How did you justify yourself for departing from the literal directions of section 35 of the specifications in classifying this clay as loose rock?—A. Well, it was hard indurated clay, tough clay, stuff that I thought could not be called common excavation, in my opinion.

Q. But the only guide given to you in these specifications is the ploughability of the land?—A. As I said before, we dispensed with that, and I did dispense with it; I did not take it into consideration. The way the stuff was handling I considered it was loose rock, or other material than common excavation, which was equally as hard as loose rock.

Q. They mentioned indurated clay here?—A. Yes.

Q. So that it would not come under other material when it is mentioned?—A. No, it probably would not.

Q. And all the stuff was indurated clay in your judgment?—A. Yes the most of it was indurated clay.

Q. During your classification, did anybody interfere with you in that classification?—A. No, not other than ask for more.

Q. But anybody in authority over you?—A. Nothing more than hold me down, to begin with. That was the only interference there was in reference to my classification. Well, in one case the resident engineer thought he ought to go a little higher, and I cut him down a little. He figured everything should be 100 per cent in that clay, and I thought some of it was not, and I cut his classification down at that time, and it was approved by the district engineer. The contractors all the time thought this clay should be classified 100 per cent right through.

Q. How is this clay that you classified as loose rock handled by the contractors?—A. With shovel and dynamite; in some cases they broke it open with dynamite; they had to shoot.

Q. Generally how was it handled?—A. Just in that way. They would come to a section of it, and they would have to blow it up, and take it with picks and load it into cars.

Q. How many shots would be put in, in a mile?—A. It all depends upon the cut, the height of it and the hardness of it.

Q. Is there a record kept of the amount of dynamite used and the place where it was used?—A. Yes.

Q. Cannot you give me any idea of how much was used?—A. No, I cannot, right off hand. Take that cut we saw this morning, they blew an awful lot there.

Q. But there was a lot of solid rock?—A. Yes, and they used a lot in the clay too. They used to bore holes right down through it and then break it up, working from a face like that.

Q. You do not mean to say powder was continuously used?—A. No, but in cases they did use powder to break it out. They would break out great chunks half the size of the end of the car, and then chop it up.

Q. If it could be chopped up out of a piece as big as the end of the car, could it not be chopped out of its original situation?—A. I do not think as well; they could not get at it to handle it as well.

Q. They could not get round it as well?—A. No.

Q. I understood that this clay would not blast?—A. Yes, it blows out all right.

Q. I understood it just blew out on the top, and would not break off?—A. Yes, it breaks off.

Q. Not anything like rock does?—A. No, not like rock. In rock there are seams, and it breaks off at the seams. You would break off more rock than probably you would of clay.

Q. How was the material measured in your division?—A. By engineers with instruments and rods.

Q. Describe what was done. Was it cross-sectioned?—A. Yes, and the slopes and stakes set out, and it was taken out to those stakes.

Q. Was any of it guessed?—A. No, not to my knowledge.

Q. None of it estimated?—A. No, none of it, to my knowledge.

Q. Did you return any description of the material when you were locating the line?—A. Very likely.

Q. What did you return the clay as?—A. Hard clay.

Q. Would you return it so that they would come to the conclusion it was common excavation?—A. I think perhaps I did, not having had any experience in the excavation of it. As I said when I came up here, I thought, without going into it, that it was just ordinary clay.

Q. Could you say that the blasting which was done was more than occasional, so far as the clay was concerned?—A. No, I would not say it was more than occasional.

Q. What did you classify as common excavation?—A. Well, muskeg and the softer clay that was there—well, loose and loamy. There are some cuts you will get some loamy clay in the ends.

Q. Did you classify any soft clay other than as common excavation?—A. The very soft, this blue clay, we get it in the bottom of those cuts, some of them; it is like gumbo. I classified that as loose rock also.

Q. That could be dug out also?—A. It could be dug out, yes.

Q. You classified that sort blue clay as—A. As loose rock.

Q. What is there in the specification to justify that?—A. No more than you cannot plough it. I am positive you cannot plough that to any advantage, because it is sticky and tough, and you go right down in it. It is like a quick sand, only it sticks to you, and it is very very heavy. It is certainly not common excavation.

Q. I understood from you that you had eliminated the question of ploughing?—A. Oh, yes.

Q. In all cases?—A. Well, I have, but that stuff is heavy and sticky, and hard to move, and it is just as difficult to move as the other.

Q. And that is the reason you so classify it?—A. Yes, hard and difficult to move.

Q. Soft you mean?—A. Soft, yes, and tough, just like rubber.

Q. Why could they not have taken out sufficient excavation here to put the tracks in, and then go along with a shovel, and take the portions of the excavation which was taken out to give the banks a slope, and run them down so that they would stand?—A. Well, I do not know that you could have handled, before you got drainage in those cuts, anything but light plant. I do not think you could, because in most of them you had to have corduroy, even for the horse cars.

Q. But your channels for draining are usually back of the bank?—A. That is just simply catch water; that catches the water that might be running in, but in excavating you get a lot of water in the cuts that you have to drain through the cuts.

Q. But would that water not drain into the cut that I first spoke of?—A. Into the ditch on the side?

Q. Yes?—A. No. We have these on the side when we are taking out the cuts.

Q. First you make a passage way through the cut through which your track could pass, leaving room on each side for small drains. Then you have your banks more or less perpendicular. Now, then, if you put down your tracks, and go through with a shovel, you could trim your banks back, could you not?—A. Yes, you could do that; that is gulletting the cuts down to grade.

Q. Getting the banks to proper slope?—A. Yes, gulletting it in the first place, just to get your track through. That could have been done.

Q. Then could it not have been taken out with a shovel?—A. Not to slope.

Q. Well, pretty nearly to slope?—A. You would have to take out more than you would need.

Q. You could take out a large quantity of that?—A. Yes; you would have to take out one-half slope, and then let it slope itself the other half.

Q. Why is that not practicable?—A. I do not know but what it might have been practicable to gullet it at the cuts first, and then take the other out with a shovel to half slope; that might have been practicable.

Q. Would you not have classified it then as common?—A. Well, I do not know whether I would or not.

Q. Had you any directions given to you as to how you should direct the material to be taken out?—A. No.

Q. If you had insisted on gulletting it, had you the power to order it to be done?—A. I suppose I had.

Q. On pain of not classifying it?—A. No, I do not think classification would have entered into deciding whether it would be gulletted or taken out to slope; but we generally took it out to slope, and it is up to the contractor to take it out.

Q. When you are paying him a high price for it, of course he would take it out, but if you had said, "You gullet this cut, and afterwards put your shovel in there—A. In some cases we would be taking more than we need to. When you put the shovel in to take out your extra width, you would be taking out a third more than you would require.

Q. In the majority of cases you would not take out more than you would require?—A. Well it would have to be a very high cut, or you would take out more.

Q. How high?—A. 18 or 20 feet; you would not be wasting much by taking out that slope; in fact, it would require to be more; it would require to be thirty. A shovel would take out more than half slope in anything under thirty feet. Anything below that you would be taking out more than you really needed with a shovel; so that in any cut under, say, 25 feet, I do not think it would be practicable to gullet it and take it out with a shovel. You would be taking out more material than you would require.

Q. Supposing you had gulletted such cuts as you could have done in a practical way, would you have made much saving?—A. No, I do not think so. There are only a few high cuts on the work, and I do not think we would have saved very much.

By Mr. Gutelius:

Q. In the discussion that occurred between the district engineer, yourself, the representative of the contractors, and the G.T.P. divisional engineer, were there any reasons given by these gentlemen to you as to why that classification should be raised?—A. As to why the classification in the estimates as they were being returned should be raised?

Q. The classification in the estimates that had already been turned in had been raised?—A. Yes.

Q. What were those reasons?—A. Well, that the material was too hard to be classified as it was; it was not common excavation; it was hard clay.

Q. Did they refer to any clause in the specification which would help you out in concurring in their recommendation to raise it?—A. No, I do not remember that they referred to any special clause.

Q. Was the plough test discussed at all at that time?—A. No, I do not think it was.

Q. Go slowly about this?—A. I do not think it was. I do not remember of the plough test being discussed.

Q. Was the specification discussed at all as printed?—A. I cannot say that I remember of it being discussed.

Q. Do you mean to say that you accepted a recommendation on classification that did not refer to the specifications?—A. I do not say that I accepted anything in that case. I say I classified the material. I went over the material and classified it as I thought it should be classified, and it was a question whether

they were satisfied. In some cases they were and in some they were not, and I classified it as I thought it ought to be classified from the condition of the material and how I found it.

Q. What did their visit have to do with your classification?—A. Nothing more than the District Engineer approved of my returning the classification as we thought it should be. It was held back previous to this.

Q. The classification you made at first you were satisfied was not right?—A. I was satisfied it was not, but I did not want to have to change my estimates afterwards. I did not want to return anything I would have to take back.

Q. That you would have to lower, you mean?—A. Yes.

Q. This discussion that occurred between you gentlemen was simply to verify your original idea?—A. Yes, they were looking for more classification—the contractors were—and there was no inspection made up to that time of the classification.

Q. Did they want more than you gave them?—A. Yes, in some cases they did; they wanted 100 per cent in most every one of those clay cuts; they were looking for it, fighting for it.

Q. Supposing that in a test that should be made in your presence, those cuttings which you have classified as 80 per cent loose rock, which is called hard clay, the plough would go through and break it up, and that you were instructed to classify according to the specification, what would you do in preparing your estimates now for the final?—A. If I was instructed to classify it—

Q. According to the specification?—A. Yes; after a plough test, if it should prove, as I think it would, as I say, that it would have to be then handled with difficulty after the plough, of course I should transfer my classification under instruction, but I would certainly not change my opinion, and would put myself on record to that effect.

Q. Do you mean to say that the test provided in these specifications has anything to do with the moving of the material?—A. Well, generally. The stuff that you plough—you would not plough it unless you put it in condition so that it is convenient to move.

Q. Is that plough item not simply a test?—A. It may be a test; I suppose it is a test.

Q. I want you to go stronger than that, because the thing is clear?—A. It is put there as a test; that is what it is there for.

Q. Is it right for you to use a test as a method of transporting or moving material?—A. It might have been right.

Q. Is it right for you to use a test?—A. It is right to use a test, if you think that practicable.

By the Chairman:

Q. Is it right for you to use a test other than that set forth in the classification?—(No answer).

By Mr. Gutelius:

Q. Supposing the test had been to take a two-inch pipe and drive it down with a twelve-pound hammer in any material; and any material that the pipe could be driven through with a twelve-pound hammer in the hands of a good man would be common excavation; if that were the test, where would the relation between the test and the removing of the material fall?—A. I would be down and out.

Q. Therefore there is nothing in the test that indicates how the material shall be removed?—A. No, not how it shall be removed.

Q. Then you cannot tell, so far as the specifications are concerned?—A. No, so far as the specifications are concerned, if that stuff proves it can be ploughed, I am wrong, according to the specifications.

Q. If it can be ploughed—that is, broken up—is it not, under those specifications, common excavation?—A. Under the specifications, with that test.

Q. Then any classification that you made, that will ultimately show that it can be ploughed, and your instructions have been, and are now, and, we will say, will be repeated, that you must follow the specification; your instructions then are to follow the specification; you will willingly change your classification because the specification so directs you?—A. If they are to be rigidly held to, yes. I say rigidly, according to the specifications, if we are to go by that test, and that test proves it can be done—

Q. Then you will change your evidence?—A. No.

Q. You will change your classification?—A. No, but my opinion with reference to that not being common excavation would never change.

By the Chairman:

Q. In your opinion as an engineer it is not common excavation, although it may be common excavation according to the specification?—A. Yes, that may be so.

Q. You have already stated that you have not formed any opinion as to whether it is ploughable or not; in fact you did not consider that at all?—A. No.

By Mr. Gutelius:

Q. Can you, with your seemingly fixed ideas, join in that plough test with an open mind?—A. Yes, I certainly can.

By the Chairman:

Q. But you would not change your mind?—A. With reference to it being other than common excavation, no—not that material. I do not think the plough test is a fair test. As an engineer I would call that loose rock.

By Mr. Gutelius:

Q. As an engineer, given a specification to work to, you are expected to work to that specification; is that right?—A. Yes, that is right, if it is reasonable at all. If it is not reasonable you report to someone else. I reported my classification to the district engineer.

By the Chairman:

Q. Did you call the attention of the district engineer to the fact that, in construing the specification literally, this was not loose rock?—A. No, I do not remember that I did.

Q. Did you say to him that this specification of loose rock was not applicable to this locality?—A. I may have said that. I do not just remember what arguments I used, or what reasonings I used. I simply said this material was certainly not common excavation in my opinion, and he saw the material and saw them working at it himself, and he had his own opinions.

Q. Apparently all of you ignored the directions of the specifications?—A. If we did not ignore it, we would be returning muskeg as loose rock.

Q. You all did ignore it, as a matter of fact, did you not?—A. We certainly did in that case of ploughing, as I say, because, if we did not, we would be returning muskeg as loose rock.

Q. Does not the specification as to loose rock only apply to hardness?—A. Well, that is all right.

Q. Does not the specification clearly mean that it is to be loose rock if it is too hard to plough?—A. That may be the meaning of it, but there is clay in the cuts, blue clay and gumbo.

Q. Reading the specification, could you not come to the conclusion that the specification meant only that it was too hard to plough, and not too soft to plough?—A. Well, no, I cannot say that, because, take this gumbo, it is soft stuff, but you cannot plough it.

Q. Did you classify any frozen material as loose rock?—A. No, sir. I know that has been done on some work, but it has not been done on ours.

Q. Would you do it simply because it was frozen?—A. It would depend upon whether they had to take it out when it was frozen or not, if it was really necessary.

Q. Would you, if you were given a specification, and sent out there, without any further instructions, classify material as loose rock merely because it was frozen?—A. If they had to take it out while it was frozen.

Q. Leaving that out?—A. You cannot very well leave it out.

Q. If they chose to take it out?—A. If they chose to take it out, and we did not require it then, I would classify it as common excavation, but if we directed them to take it out while it was frozen, I would classify it as loose rock.

Q. But only if you gave directions?—A. Yes.

By Mr. Gutelius:

Q. Supposing the plough test shows the clay you have classified as loose rock is common excavation; and we go to your district engineer, and he says, "I accepted Mr. Robertson's signature on the classification," how are you going to conduct yourself? What instructions have you that you could refer to? He puts the classification up to you? A. With his approval.

Q. Have you his approval?—A. No more than he was satisfied to accept it and considered it was all right.

Q. He has accepted Robertson's recommendation because he knows you to be an engineer of standing and an honest man. You tell us that you have classified this irrespective of the specification, the plough test, and if the plough test is made and happens to prove that it is common excavation, where are you going to get off? What excuse are you going to give Mr. Staunton and me?—A. I say I did not change my mind with reference to it not being common excavation.

Q. In the face of a specification which has been handed to you and which you have been told to work by; what motive have you in ignoring it and standing pat?—A. Because I do not really think it is feasible to plough it.

Q. I am saying, if it is ploughed and broken up and you see it?—A. Well, I make a mistake, certainly.

Q. And you will make your peace by correcting—A. I certainly made a mistake if it can be handled by a plough. I think now that a plough test would not change my opinion. I do not think you can prove to me it is common excavation with a plough.

By the Chairman:

Q. I think you are contradicting yourself unintentionally. You said, did you not, that even if it could be ploughed, it is such material that you would not classify it as anything but loose rock?—A. In my opinion you might plough it, but I do not think you would leave it in condition that you could handle it after ploughing it, feasibly.

By Mr. Gutelius:

Q. You have got away from that, and said the condition has nothing to do with the test —A. I mean to say I really do not think now the test will prove that it is ploughable. If you plough, and prove it breaks it up, and puts it in such a condition that you can handle it easily with shovel and scraper, then I have made a mistake in classifying it as loose rock, but I do not believe you can, and I do not believe to-day you can handle it with a plough; I sincerely do not.

Q. Break up is all that the plough test means?—A. You must break it up so that you can handle it with shovels. There is not much use breaking it if you cannot handle it with pick and shovel.

Q. This is a test we are talking about; we cannot think of it in the same line, unless you think of it as a test?—A. Supposing you can pull that plough through with a six-horse team, in fact you can pull it through there, whether the material is thrown up or not, that is the test?

Q. Yes, that is the test, dragging the plough through the material?—A. That may be a test, but what good would it do towards breaking it up?

Q. It is only testing it?—A. Not whether it does any good or not?

Q. No (No answer.)

By the Chairman:

Q. Ploughing means turning it over?—A. Yes, so that you can handle it.

Q. If you could turn it over with a plough, would that satisfy that it was loose material?—A. Yes, if it breaks up.

Q. If you can turn it over?—A. If you can turn it over and it stood in one ribbon, one strip—

Q. Just turn it over, I do not care what condition it is in, after it is turned over, would you admit it is loose material, no matter what condition you will have it in after it was turned over?—A. I would not like to say I would. I would like to see the condition it was in after it was turned over. I would say if you could turn it over so that you could handle it—

Q. If you could turn it over in furrows, irrespective of anything that it will do, would you classify it as loose rock, or would you classify it as common excavation?—A. Well, it is just as I said before; if you simply turn it over, and it has then to be handled again, I would not call it common excavation. If it has then got to be broken up by some other means before you can move it, I would not call it common excavation.

Q. But you would say if you broke it up, and it broke itself after turning it over, you would consider it common excavation?—A. Yes, if it broke in such a way as you could handle it.

Q. How would you have to handle it then?—A. With either shovel or scraper.

Q. Then to summarize, what you say is that, unless the plough will turn it over and leave it in a broken up condition, you would not class it as—A. To be handled by shovel and scraper; otherwise I would not consider it common excavation.

Q. Can you conceive of a plough turning it over and not leaving it broken up?—A. Yes, I think I can. I said that stuff would fall back.

Q. Can you conceive of a plough turning it over and not breaking it up?—A. Yes, I think it would break it up if it turned over, because there is no sod to hold it.

Q. Then if the plough would turn it over, it is common excavation?—A. It would probably be broken up in a condition that you could handle it.

Q. Then the plough test is all right if it will turn it over?—A. I should imagine yes, coming back to that, yes, it would; without the sod, it would naturally break up, if it turns over.

By Mr. Gutelius:

Q. And the only verification that you have received from higher officers is that your estimates were not returned to you for revision?—A. Yes.

By the Chairman:

Q. And your belief that your higher officers knew the condition of the soil? —A. Yes. Of course they were on the work from time to time and saw it in operation and knew exactly what we were doing and how we were classifying.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN AT COCHRANE, June 7th, 1912).

H. G. O'Leary, sworn:

Examined by Mr. Gutelius:

Q. You are an engineer by profession?—A. Yes.

Q. Where were you educated?—A. Toronto University.

Q. What construction work were you engaged at before coming to the Transcontinental?—A. On the Lake Superior Branch.

Q. Of the G.T.P.?— A. Yes.

Q. That was your first engineering work?—A. I was on the Transcontinental before that.

Q. In what capacity?—A. I was chainman, leveller and transit man.

Q. When did you have your first Residency on construction?—A. Residency 17, Lake Superior Branch.

Q. What year?—A. I think it was the fall of 1906.

Q. And you have been continuously engaged in railway construction since? —A: Since 1904.

Q. How many Residencies did you have on the N.T.R.?—A. I was Resident on one, and I was instrument man on 21 before.

Q. And you are now?—A. Division engineer.

Q. You had to do with the construction and classification of Division 2?— A. Division 2.

Q. And you are now in charge of divisions 2 and 3?—A. Yes.

Q. District C.?—A. District D.

Q. Having been resident engineer on the Lake Superior Branch of the G.T.P., you had to do with classification?—A. Yes.

Q. How did the specifications for classification on the G.T.P. compare with those of the N.T.R., under which you are now working?—A. Do you mean the wording of the classification? I think they were very nearly identical; they were very close. The words were not the same, but I think they were very close to the same. I do not think we had the wording "Continuous blasting" in ours. We had the plough test and the boulder measurements exactly the same. I do not think we had the "continuous blasting" or "blasting may be occasionally resorted to."

Q. How did the prices paid on the Residency there compare with the prices on the division here?—A. The main contractor's prices were lower. If I remember correctly, it was 25 cents, 50 cents and $1.45.

Q. Here it is, 34?—A. 34, 50 and $1.75—no, not 50; the loose rock is 65.

Q. 34, 65 and $1.75?—A. Yes.

Q. Is there any difference in the classification of the material between the work that you did on the Lake Superior branch and that which you did on this division?—A. The material I encountered there was not the same. We were dealing more there with quicksand, boulders and solid rock. Here it is practically all clay.

Q. What did they classify quicksand as on the Lake Superior division?—A. Classified as loose rock, with some solid.

Q. You classified the contractors out; that is, you gave them enough classified material to ensure their men a day's pay?—A. Yes.

Q. Was there a plough test in the G.T.P. specification?—A. Yes.

Q. If you had encountered clay similar to that excavated on your division here when you were on the G.T.P., would you have classified it as loose rock in the same proportion?—A. Yes, the way we were classifying, very nearly as high, I think.

Q. But not quite as high?—A. Well, possibly not.

Q. Why would you classify it higher here?—A. I am saying according to the way we were classifying there.

Q. Why would you not, under practically the same specification, make the same classification here as you would have made up there?—A. Well, that involves a question as to whether the man in the field is the man who is classifying, or whether he has to change his judgment in accordance with the Chief Engineer's instructions.

Q. You are speaking of the Chief Engineer's instructions, then, in connection with classification on your division here?—A. We received them, not direct from Mr. Grant, but from our superior officers, and our classification was accepted and passed by the district engineer, the inspecting engineer and the Grand Trunk engineer, and we based our specifications, to a large extent on that.

Q. On what they would pass?—A. On what they said. In some cases our classification was raised by them, and in some cases lowered, and we changed—at least I did—according to that.

Q. Were you ever instructed to increase the classification on this work where, in your judgment, you would not have done so, if left to yourself?—A. Well, that is a question that involves the interpretation of the clauses of the contract, that our judgment has to be influenced by what the contract calls for in the specification, and in these cases I have seen a great many written opinions by lawyers, stating what was meant by the different clauses of the contract.

Q. What opinions were those?—A. Alec. McDougall, of McDougall & O'Gorman, had a whole bunch of them, and I saw them.

Q. Did he offer them to you of his own accord?—A. No, his engineer was a personal friend of mine; he went through college at the same time as I did. It was he who showed them to me.

Q. Those were opinions by Mr. Lafleur?—A. And there were some Toronto men, I think E. F. B. Johnston was one, if I remember rightly. I remember there were quite a number of Toronto lawyers.

Q. See if you can remember some of the names?—A. I could not say; I could not swear to any of them, but it strikes me E. F. B. Johnston was one. I would not swear to it.

Q. And you felt, after those opinions were given as to the specification, that they were probably right, whether your judgment agreed with them or not?—A. I felt that, coming to a case of law, that they would probably know better what would be the interpretation placed on that by a judge to a certain extent.

Q. Then that was the reason that you coincided with the classification which your superior officers suggested?—A. No; there was a certain classification given on part of this work: I did not take it at first: there was a classification given and that classification had been raised.

Q. Tell me how that raising was done?—A. It was done when Macfarlane took this division over, and I think it was Mr. Sunston who did the reclassifying.

Q. You do not know this of your personal knowledge?—A. No, it was before my time, and that classification, I understood, was the accepted classification.

Q. And you endeavoured in your work to classify in accordance with that? —A. Where I could take that as a standard; some places I am considerably lower, and a few places I am higher.

Q. You have classified some of those blue clay cuts as high as 90 per cent. loose rock?—A. Some of them have gone up, I think, to 98 per cent; that is the highest on my work.

Q. In so classifying did you take into account the plough test provided in the specification?—A. We were talking of the plough test, whether the plough test was actually dragging a plough through it.

Q. Better answer the question?—A. I want to explain what I meant by taking it into account. I took into consideration that the plough test, by ploughing it, did not put it in shape to be handled by a slush scraper.

Q. You did not consider the paragraph with reference to ploughing as a test, but rather as a method of excavation?—A. Well, I considered the interpretation of that "cannot be ploughed" to mean that it could not be ploughed and put in shape to be handled. Of course that was after talking over with a great many men. Mr. Staunton suggested that this had been talked over. I wish to say it has been. I have talked it over with nearly all the contractors. I have obtained their opinions and others.

Q. Contractors' opinions are rather dangerous in classification, are they not? —A. Oh, yes.

Q. Is the suggestion as to the paragraph in connection with the ploughing being a test new to you?—A. No. we disregarded that on the branch.

Q. Did you disregard it here?—A. Practically to that extent.

Q. I understand then, that, so far as your work is concerned, having regard for your superior officers, that you did disregard the plough test?—A. Well, to the extent as I say, that the plough test—

Q. Having regard to your superior officers?—A. You mean by that, having regard to what they considered?

Q. Yes?—A. Well, we disregarded it to that extent also. I had that from my superior officers, that the ploughing had to put it in shape to be handled by earth methods.

Q. Who gave you that idea?—A. I think Mr. Mattice and Mr. Balkam both. I know Mattice has.

Q. When did you last speak to Mattice about classification, including to-day? —A. You mean in regard to my classification?

Q. Yes?—A. When he was district engineer.

Q. You did not speak to him at all recently?—A. No. I may have passed a word, but nothing of any account, nothing serious.

Q. Balkam also made it clear to you?—A. I think so.

Q. That the plough test meant that after the material was ploughed it was to be in condition to be handled by a slush scraper?—A. I think he said by approved earth methods; presumably he means slushing and scraping.

Q. If left to your own judgment, with nothing but the specification which you would be endeavoring to abide by, and a plough test was made which would loosen the material in some of the cuts, or adjacent to the cuts, and it was broken up so as to be handled by a slusher. would you change your classification in that cut?—A. I think it should be changed. May I state that at camp Mile 54 there is a big clay cut, in which there was some of that very soft blue gumbo. That cut was ploughed; they had two teams of horses and they ploughed it and took it out by carts.

Q. What classification did you give it?—A. Practically loose rock; they were only able to work at that cut at one time two days in two weeks.

Q. With carts and ploughs?—A. No, with car and track. They ploughed it and took it out with car and track.

Q. Did it not occur to you that when they ploughed it and took it out that way, under the specification it should be common excavation?—A. I would not say it should be common excavation. I am willing to admit that my classification is high in my own judgment.

Q. I think you feel your classification is high?—A. Yes, I am willing to admit my classification is high, but in my judgment there is practically no clay which should be classified as common excavation.

Q. That is your judgment, irrespective of the specification?—A. Yes.

Q. But if you would hew to the specification, that cut at mileage 54, as far as they ploughed, would have to be common excavation?—A. Well, the thing was when they ploughed, they ploughed it and it turned over in a long ribbon, it did not break up at all, and then they went along and cut it with their spades and shovelled it in.

Q. And they handled it fairly nicely?—A. Well, they paid the contractors 54 cents a yard for that, and had to give them free horses and free car and track, to let them make anything. It took the contractor's full original price for the station men to handle that cut.

Q. And to have made it common excavation, they would have lost money?—A. Oh, yes, everybody.

Q. And you did not feel it would have been a square deal to have let them lose money, when other clay was being classified as loose rock?—A. Well, that clay was very much the same as any other clay which we were classifying. My personal opinion is that there is no clay in this country as clay—or, at least, very little, there is some—which two teams of horses could not drag a plough through, except what is too soft for the horses to walk in.

Q. Suppose a contract had been made in which it was specified that all clay on District 3 was to be called common excavation, what would you have done then?—A. Well there would not have been any question; it would have been common excavation.

Q. Then how would your judgment have been?—A. There would be no question on the thing.

Q. Then it is because the language in the present specification is not sufficiently clear to your mind, rather than on account of the material?—A. No, no. The language in the specification is not clear to me, but I also think that the difficulty of handling that material was greater than the difficulty of handling material which would come under the specification as loose rock, namely a bunch of boulders one foot square. There would be the difficulty to the contractors; take a gang of ten men and work them in the clay, and work them them in what there is no question about, in the loose rock, the men would handle a great many more yards of loose rock than the others.

Q. The cost to the contractor influences you?—A. I think all the specifications are made up according to the cost of the material, that instead of calling them solid rock and common excavation, if you labelled those one, two and three, and gave your definition of them, your definition is fixed by the cost of moving that particular object. When you get down to what the specifications are, they are fixed in order to cover the cost of different materials, which are to cover the difficulty of moving these materials. The price is fixed by the difficulty of moving the materials. I think myself that the specifications really hardly cover the blue gumbo. I cannot see where it fits under any particular item.

Q. Had you no compunction of conscience in putting it under one of the items when you did not think either of them covered it?—A. No, not according to the way things were going.

Q. If you wanted to purchase some wooden pipe, which is not covered in the specifications or contract, how would you arrange a price for that?—A. You would arrange with the contractor, and put it up to the district engineer, who would put it up to the chief.

Q. If material in excavation was encountered which you did consider was covered by the contract, why do you not use the same method?—A. We have. The classification of the blue gumbo has been sanctioned by the district engineer and inspecting engineer.

Q. Not only sanctioned, but you were advised in discussion that they classified the material that way?—A. Yes, when we were asked on a thing, that is what was done. If my personal opinion differs from the chief engineer my feeling is that I have to change my mind to suit his.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON THE TRAIN BETWEEN GRANT AND CROW CREEK, JUNE 9th, 1912.)

H. M. Pardee, sworn:

Examined by the Chairman:

Q. You are an engineer by profession?—A. I am not a college man; I put myself through.

Q. Where were you educated?—A. Upper Canada College.

Q. And then after you left school you went out to make your living?—A. Yes.

Q. At what? A. I first started in to bank; I worked in that for about six years, and I worked for Clergue and Company at the Sault.

Q. As what? Banker?—A. No, as clerk in the purchasing department.

Q. Then what?—A. Then I went with Clergue on the Algoma Central.

Q. What position did you occupy there?—A. Rodman.

Q. And you continued to be rodman till when?—A. I was rodman there for about a year.

Q. Then what did you do?—A. I stayed there for a year, and then went to the G.T.P. as axeman, and then I was tapeman, and then I drifted round as topographer for a couple of years, and I ran instrument, level, and on construction on location, and then I started in over here, Residency 4, the T.C.R., as resident engineer.

Q. How long have you been on the T.C.R.?—A. I would be about three years and a half.

Q. When did you get your first Residency?—A. That would be about three years ago.

Q. And when did you commence then actively to act in classification?—A. Well, I could not say—about two years and a half ago, when I was made divisional engineer.

Q. Had you any connection with the classification until you were made resident engineer?—A. No, I had not.

Q. Of course when you became resident engineer you were more or less engaged in classification?—A. Yes.

Q. And then you became divisional engineer two years and a half ago?—A. A. Yes.

Q. Then you took up the classification and became responsible for it?—A. Yes, in a way.

Q. You became responsible for it until it was handed on higher up?—A. Yes.

Q. Then you were resident engineer where?—A. Resident engineer on Residency 4, District D, T.C.R.

Q. Whose contract?—A. That was on Foley's — at least, I should say the G.T.P.—Foley, Welch & Stewart.

Q. Subs for the G.T.P.?—A. Subs for the G.T.P. Railway Company.

Q. You became Divisional Engineer two years and a half ago?—A. Yes.

Q. What was your division?—A. Division 7, where I am at present.

Q. Describe what it is?—A. Division 7, District C, T.C.R. Railway.

Q. Whose contract?—A. That was O'Brien, McDougall and O'Gorman.

Q. Your headquarters are where?—A. At Hearst, mile 232.

Q. Hearst is the place formerly called and commonly known as Grant?—A. Yes.

Q. Have you got the total of the classification that you have certified since you have been there, of all kinds?—A. You mean that I have signed?

Q. That you have turned in?—A. Yes.

Q. Have you it here?—A. I have not it with me. I can give you about the percentage.

Q. That is what I want?—A. About 48 per cent loose rock.

Q. How much per cent of your work was solid rock excavation?—A. Practically nothing. There was no solid rock to speak of.

Q. Forty-eight per cent. of it was what you classified as loose rock?—A. Yes.

Q. And 52 per cent of what?—A. Common excavation.

By Mr. Gutelius:

Q. With a very small amount of rock?—A. Yes.

By the Chairman:

Q. You are only giving me approximate figures?—A. Exactly.

Q. Can you give me any approximate figures about the amount of classification you have made?—A. Made myself?

Q. No, that has been made in yards in your division since you came into it?—A. Well, I cannot very well.

Q. You could not tell me anything near it?

By Mr. Gutelius:

Q. Some 15,000 or 20,000 yards to the mile?—A. Yes, it would be something like that.

Q. And how many miles are there?—A. 65 miles.

By the Chairman:

Q. The grading on your division is made up of cuts and fills, and where there is material in a cut you carry it and deposit it in the fill?—A. I do.

Q. And you are paid for that work one price?—A. Yes.

Q. When you have not sufficient to fill up to grade line from cuts on the line, you take it next from the side borrow?—A. Yes.

Q. That is on the railway right of way?—A. Yes.

Q. Then what do you pay for the material taken off the track and from the side borrow?—A. Well, it is 43 cents for common, and 65, I think it is, for loose; that is loose rock.

Q. And you pay the ordinary price for solid; you do not take any solid out for that, do you?—A. No, not for that.

Q. When you have not sufficient in the side borrow, where do you get your material?—A. In this case we have always had sufficient.

By Mr. Gutelius:

Q. It would be train fill?—A. Yes.

By the Chairman:

Q. It is not train fill that is taken from the side borrow?—A. No.

Q. The next thing you use is train fill?—A. Yes.

Q. Do you include the excavated material from the ditches in side borrow?—A. No, I do not

Q. That is paid for at excavation prices?—A. Yes, as loose rock and common.

Q. Or whatever it is?—A. Or whatever it is.

Q. Then you resort, after you have exhausted the side borrow and the ditches and the cuts, to what is called train fill, do you not?—A. Yes.

Q. And the train fill you obtain from borrow pits?—A. Borrow pits, exactly.

Q. Is there much of that in your division?—A. Yes, there is.

Q. A large quantity?—A. Well, I should say yes.

Q. You could not give me any estimated figures?—A. I suppose there would be a million yards anyway, or a million and a half.

Q. A million to a million and a half of yards?—A. Yes.

Q. What are they paid for that?—A. 55 cents; that is for train fill.

Q. Does it make any difference where it comes from?—A. Yes; and then they are paid one cent a yard for over five miles, for overhaul.

By Mr. Gutelius:

Q. One cent a yard per mile?—A. Yes.

By the Chairman:

Q. Train fill is material carried by the contractor on cars from borrow pits, wherever he may find the most convenient?—A. Yes, or wherever we can find the pits. We have got to get the suitable material.

Q. Wherever you can find the pits most convenient suitable for the purpose?—A. Yes.

Q. And this material is preferably gravel?—A. Yes.

Q. Has it been on your division all gravel?—A. No, it has not.

Q. A large or small proportion?—A. Well, a small proportion is gravel.

Q. And the rest is clay?—A. Well, there is some clay, but we are going to get a good deal of sand.

Q. Clay, sand and gravel is the train fill?—Yes.

Q. Pretty nearly everything excepting this muskeg?—A. Yes.

Q. He is paid a cent a mile over five miles?—A. Yes, for train fill material.

Q. In classifying material on this line, you have classified, I believe, a large quantity of the clay as loose rock?—A. Yes.

Q. Will you give me your reasons for doing that?—A. Well, the reasons were that it was very wet and hard to handle.

Q. In the first place, you are familiar with the specification?—A. I am.

Q. You know that in the specification there is a definition of loose rock excavation?—A. Yes.

Q. And you classify a large amount of clay, in fact most of the clay, as loose rock, do you not?—A. Yes, I did.

Q. Tell me by what process of reasoning you arrive at the conclusion that you should classify this clay as loose rock?—A. Well, it was very wet and hard to handle.

Q. Some part of it you classified as loose rock because it was wet and hard to handle?—A. Wet and hard to handle, and hard material.

Q. Is the wet material hard?—A. No, it is not.

Q. Then keep them separate. First, you classified part of it as loose rock because it was wet clay and hard to handle?—A. Yes.

Q. That was not hard, but it was too soft to handle economically; is that your meaning?—A. Yes, that is the meaning all right.

Q. You mean to say that it cost the contractor——?—A. It was very expensive stuff to handle.

Q. That is one head. Now, the next heading of clay which you classified as loose rock was what?—A. It was too hard to plough and had to be blown.

Q. Did you classify the top, the surface clay, as loose rock material?—A. No, I did not.

Q. How deep did you classify in your usual cuts as earth excavation?—A. From a foot to a foot and a half from the top; it was common excavation.

Q. How was that taken off?—A. It was taken off in carts.

Q. How was it moved out of its present position—A. With shovels.

Q. Then you passed through that for a foot or a foot and a half?—A. Yes.

Q. What did you come on then?—A. We came on a more sticky gumbo; I cannot say in all cases that we did that.

Q. I mean usually?—A. Usually, yes.

Q. I am not pinning you down to all cases. I want you to understand that unless I ask you with particularity, I am only asking you generally over your work?—A. I understand.

Q. You came on sticky gumbo—A. Yes, soft, sticky gumbo.

Q. And that is the material you first spoke of as being soft and wet?—A. Yes.

Q. Why did you not class that soft material as common excavation?—A. This is the second piece you are speaking of?

Q. Yes?—A. Well, because it was too hard to handle.

Q. How did they handle it?—A. They handled it with picks and shovels; they shot it with dynamite.

Q. You are talking now only of the soft material?—A. Yes.

Q. They did not shoot soft material?—A. They did in some cases; I have seen it done.

Q. In your work did they generally shoot this soft material?—A. No, they did not.

Q. Tell me how they handled this soft material you call gumbo?—A. With picks and shovels.

Q. How would they pick the soft material?—A. The pick kind of loosens it up. It is a kind of soft, mucky stuff, and they cut it out in chunks and shovel it in, if they can.

Q. What would they use? One of these mattocks?—A. Yes, a mattock generally.

Q. A mattock is not usually used in hard material?—A. No, they use picks.

Q. You say they took it down with mattocks?—A. Yes.

Q. Cut into the face of it?—A. Yes.

Q. Pulled it down with a mattock?—A. Yes.

Q. And threw it in with a shovel?—A. Yes.

Q. That is a fair description of their methods?—A. Yes.

Q. That was usually the way the material was taken out?—A. Yes.

Q. How deep would this material average?—A. It would average right to the bottom of the cuts.

Q. I am speaking now of the soft material. Was there anything below the soft material?—A. Not generally, no.

Q. Then in some cases it would be loose, common excavation on top, and then right to the bottom of the cut gumbo?—A. Yes.

Q. Tell me about what proportion of your work was gumbo?—A. About 48 per cent.

Q. But tell me what proportion of your work was gumbo—soft clay that was classified as loose rock?—A. About 99 per cent of soft stuff.

Q. Then you had no indurated or hard clay on your division?—A. About one per cent of it.

Q. About one per cent of it was indurated or hard clay in your division? —A. Yes.

Q. So that, as far as you are concerned, I need not trouble you at all about indurated clay or hard clay?—A. No.

By Mr. Gutelius:

Q. To make it clear, were any of these clay cuts of yours excavated by means of shots and powder?—A. In the winter there was some with shot.

Q. But only in case of frost?—A. Yes.

Q. Not on account of the material being so hard that it required blasting? —A. No.

By the Chairman:

Q. Was much of this material, gumbo, taken out in the winter?—A. Quite a good deal of it.

Q. Have you any notion about what proportion of it?—A. About, we will say, fifty per cent, I suppose. I cannot very well tell.

By Mr. Gutelius:

Q. Roughly, half of it?—A. Yes.

By the Chairman:

Q. I suppose your returns will show all this?—A. Yes.

Q. I want it put in a summary, and I can check it by the returns, so that you need not trouble yourself to be accurate, as long as you get reasonably near it. It is a convenient way of getting it?—A. Yes.

Q. Did you allow that loose rock because it was frozen?—A. No; well, in rare cases there was some of it allowed, but very little of it.

Q. Do you show in your returns that it was put in as frozen?—A. No, I do not think so.

Q. About what proportion did you allow because it was frozen? I suppose that question need not be asked, because you would have allowed that same material, if it had been taken out in the summer, as loose rock?—A. Yes.

Q. So that it makes no difference?—A. No.

Q. Did you ever classify any of this soft clay at any time as common? What I mean is, did you ever change your classification, or have you pursued this course from the beginning?—A. I have pursued that course, to the best of my ability.

Q. I am not questioning your integrity, but I want to find what you did. Have you pursued that course from the beginning?—A. I have.

Q. Did you ever raise your classification?—A. Yes, I have raised it in a few cases.

Q. What did you raise?—A. I have raised it in cuts.

Q. From what?—A. I have raised it in some borrows.

Q. From what?—A. From common to loose rock.

Q. Do I understand you to mean that, having classified your material as common excavation and sent it in, you afterwards classified that same kind of material as loose rock?—A. Loose rock and vice versa.

Q. Why did you do that?—A. Well, I do not know. I thought my judgment was not quite right at first.

Q. At first you put it in as common?—A. I put it in as common.

Q. Who talked you into changing your judgment?—A. Nobody.

Q. Somebody must have protested, or you would not have changed, would you?—A. Oh, yes.

Q. Did any person protest?—A. No.

Q. Was the contractor satisfied?—A. I do not know. The contractor never knew anything about it, as far as I know.

Q. He got paid on estimates?—A. I know he did, but he never spoke to me about it at all. There have been cases where he has spoken to me.

Q. You first began by putting in the soft clay as common excavation?—A. Yes, I have.

Q. Then, without any persuasion by any person else, you changed that classification?—A. I have changed it.

Q. And the contractor, so far as you know, made no complaint of the first classification?—A. I think not.

Q. How much did you classify as common excavation before you changed your judgment?—A. Oh, it would not be any very large amount.

Q. About how much?

By Mr. Gutelius:

Q. How many months?—A. Well, I suppose about ten or twelve months, all the time I was up there. The work was going on, and they were moving this stuff.

By the Chairman:

Q. I want to be fair with you, and your answers may mean what you do not wish to say, unless you are very careful and understand the question. You told me that in the beginning you classified this soft clay, which you describe as gumbo, as common excavation?—A. Yes.

Q. How long did you continue to classify gumbo as common excavation?—A. I never continued.

Q. How long did you do it?—A. I never did it.

Q. You said you did in the beginning and then you changed your mind?—A. No: I say I changed parts of things that I thought were gumbo, which I found had not been working so hard as the others; I changed it back again.

Q. You mean you have rectified what you considered were mistakes you had made?—A. Exactly.

Q. But you never changed your general method of classification?—A. No, no.

Q. You see now it gives an entirely different impression?—A. Yes.

Q. Then have you classified all the work that has been classified on this division?—A. On my division?

Q. Yes, from the beginning?—A. No.

Q. Who preceded you as divisional engineer?—A. I will have to explpain to you. I started off with thirty miles at first.

Q. On that thirty miles who preceded you?—A. No person.

Q. Then you did all the classifying on that thirty miles?—A. Yes.

Q. Which thirty miles is that?—A. That was from 218 to 248.

Q. Where is that? Grant?—A. Yes, it passes through Grant, mile 218 to mile 248.

Q. On section D?—A. On section D.

Q. Was there any divisional engineer on the remainder?—A. Yes.

Q. And when did you take charge of that portion?—A. I took charge of that last September, I think it was—part of it.

Q. Was there much classification made before you took it up?—A. It was nearly all made.

Q. Who was the man who classified that?—A. Mr. McLellan and Mr. Sunston had this end of it.

Q. So that you only had half the division?—A. I only had half the division.

Q. So that you are not responsible for the classification on the western half?—A. Well, I have had it added on to both ends.

Q. How much did you have added on to the western end?—A. I have 20 miles on the other end.

Q. 20 miles on the west end?—A. Yes.

Q. And how much on the east end?—A. And the balance at this end.

Q. The balance on the east end?—A. Yes.

Q. Your section was in the middle?—A. Yes.

Q. Are you responsible for the classification of either of these ends?—A. Well, only in places where the work was not quite completed.

Q. Generally speaking, you are not responsible for it?—A. No, generally speaking I am not.

Q. But over all your work you made the same classification?—A. I did.

Q. And over all your work it was soft clay?—A. It was soft clay, yes.

Q. Do you know what gumbo is?—A. Well, I guess I do.

Q. Where did you learn what gumbo was?—A. I saw it out on Residency 4. Don't you call that gumbo you get around Lake Abitibi—blue clay?

Q. Describe gumbo? What is it as you call it?—A. It is a sticky clay.

Q. Colored what?—A. Oh, kind of the color of the table cloth.

Q. The table cloth is very bilious looking?—A. It is a bilious looking orange.

Q. What is the color in your judgment?—A. A kind of grey—bluish grey.

By Mr. Gutelius:

Q. Some yellow?—A. Some yellow.

By the Chairman:

Q. At the station in Grant, opposite the freight house, on the 8th of June, the contractors were digging out a quantity of clay and spreading it to fill the yard?—A. Yes.

Q. Is that what you call gumbo?—A. It is when it is softened up.

Q. Is that stuff what you call gumbo?—A. No, not at the present time: if it was wet it would be.

Q. Gumbo is simply clay more or less in solution?—A. Yes, that is the way I would put it.

Q. How would you classify that clay at Grant?—A. That which they are taking out at the present time?

Q. Yes?—A. I would classify it as common excavation.

Q. That was taken out with a mattock and shovel?—A. Yes.

Q. If that clay had been wetter, and still to be taken out with a mattock and shovel, you might classify it as loose rock excavation?—A. Well, I am getting a little mixed up in it.

Q. I think you are. You told me if that clay was wetter it would be what you would call gumbo?—A. Yes.

Q. Do you mean that?—A. Well, it would be, and what I want to explain to you is that that stuff, when it is wet, is very hard to handle; I do not know whether you would call it gumbo or not. At the time that country was opened up it was very hard stuff to handle when it was wet.

Q. When you use the word "gumbo" here, you only mean grey or yellowish clay that is very wet?—A. Yes.

Q. That is what you mean?—A. Yes.

Q. And if that does not mean gumbo, then you have not been speaking of gumbo at all?—A. No.

Q. That is what you mean, is it not?—A. Yes.

Q. You do mean now that you have classified what one sees in going along this line in cuts—that is, a greyish clay—as loose rock when it was so wet that it was very expensive to handle?—A. Yes, that is exactly what I am trying to get at.

By Mr. Gutelius:

Q. The specifications for the N.T.R. are the only specifications you ever classified material under?—A. Yes, that is so.

Q. Your whole schooling, then, was on this railway?—A. Yes, as far as classification is concerned.

Q. Is it not a fact that you did discuss the classification with your higher officers?—A. Oh, I have discussed it, yes.

Q. Did you not get this classification such as you knew they would approve?—A. Yes.

Q. Did you make any personal study of the specifications with reference to the plough test?—A. Yes.

Q. Did you consider the plough test at all in classifying?—A. I did.

Q. Did you ever make a test with the plough?—A. We did, yes; we tried to move one cut with a plough.

Q. Could you plough it?—A. We could plough it, yes.

Q. And after showing it could be torn up by the plough, you still called it loose rock?—A. Loose rock, as the plough did not help it out any.

By the Chairman:

Q. What do you mean by "did not help it out any"?—A. Well, did not make it any easier to move.

Q. It turned it over, though?—A. It might run through it, and you could see that a furrow had been there, and you might not be able to in other places; some places it would catch hold of a little chunk of it and turn it over.

By Mr. Gutelius:

Q. But it tore the material out?—A. Yes.

Q. The plough went in the stuff?—A. Yes.

Q. In the interpretation of the contract did you not consider that the clause relative to ploughing was a test, rather than a method of excavation?—A. Yes, that is the way I should have taken it, I should think.

Q. Then you did test it, and found that it stood the test, namely being able to plough it?—A. Yes.

Q. And because it could not be handled cheaply after ploughing, you called it loose rock?—A. Yes. The way I got it was that if you could plough it, and it was any help by being ploughed, why the plough was to be used, and it was to be called common excavation, but if your plough did not help it at all, then the man had to use his own judgment, as far as I have learned.

Q. You know the difference between a test and a method of moving material?—A. Well, yes, I have seen tests made.

Q. Suppose that, instead of the plough test, it had been a test to drive a piece of two inch gas pipe through the material with a sixteen pound hammer, and that you could have driven this through, and found the material as hard as it is actually, how would you have classified it?—A. Well, if I could have done that, I would classify it as common.

Q. Don't you see a plough test might have been made on each of these cuts, the same as the tube test, and after that it could be removed in any way that they chose, and you would, according to the specification, be compelled to classify according to the test?—A. Yes.

By the Chairman:

Q. It could be ploughed?—A. Yes, it could be ploughed.
Q. Just as it could be tested by the tube?—A. Yes.
Q. And yet you put it in as loose rock?—A. Yes.

By Mr. Gutelius:

Q. If the price of common excavation on this contract had been 60 cents a yard, and the price of loose rock 75 cents a yard, would that have influenced your specification?—A. I hope not.
Q. Make sure about that?—A. I hope not.

By the Chairman:

Q. If the price had been 60 cents for common excavation and 60 cents for loose rock excavation, and you thought you could plough it, then how would you have classified it?—A. You mean just changing it around?
Q. No, if the price had been 60 cents for common excavation and 60 cents for loose rock, and the plough would have gone through it, as you say it would, then how would you have classified this soft clay—if the price had been the same?—A. I think I would classify it just about the same, as far as I interpret——
Q. But it would not be loose rock?—A. No, that is the trouble: it is not loose rock. There should be a class in between. There should be something to cover this material.
Q. If the price had been the same, if there had been no difference in the price, how would you have classified it when you were told to so classify that stuff on which you could use the plough test? How would you have classified it then?—A. It is pretty hard to say.
Q. The price paid for common excavation and loose rock is what influenced you?—A. Yes.
Q. That is what influenced you?—A. Yes.
Q. And if the price had been as good for common as it was for loose, you would have made it common?—A. Yes.

By Mr. Gutelius:

Q. Because of the plough test: that would have been the reason?—A. Yes.

By the Chairman:

Q. Is that what you mean? Here you have a cut, and in your hand you have a specification, and that specification says that all material, excepting rock, which is described as solid, which can be ploughed with a ten inch grading plough, drawn by six good horses properly handled, shall be classified as common excavation. Now, you came along and you saw this material and you said, "While I believe that six good horses can draw that plough through there, yet it will not leave it in any better condition for handling: I know that the price to be paid for common excavation is exactly the same as the price to be paid for loose rock: it will not benefit the contractor one cent for me to call this loose rock any more than to call it common excavation"; what would you have called it under these conditions?—A. I would call it loose rock.
Q. You will still call it loose rock?—A. Yes.
Q. Why?—A. Well, because the plough was no good; it did not help things out.
Q. What is the use of considering whether the plough was any good or not, when the man was getting the same price for one as the other? I think, Mr. Pardee, what your evidence amounts to is this: that you thought it should be loose rock excavation unless the ploughing improved it?—A. Yes, that is it exactly.
Q. That is the whole thing?—A. Yes.

By Mr. Gutelius:

Q. Then you do not accept the clause about ploughing as the test for classification?—A. Well, I did not think, from what I saw of the plough test, that it helped the work any that I saw done.

Q. And that as a test for classification it was no good, and you did not use it?—A. That is it.

Q. I think that is what you mean?—A. Yes.

Q. You practically abandoned the plough test in your classification?—A. Yes, that is what I did.

Q. I notice on your division a great many places where the sub grade has been raised through muskeg country. That appears to me to be too high. When I suggest lowering these grades from one to three feet, does it appeal to you as a method that might have been adopted in reducing the cost of grading this railway?—A. It does, certainly.

Q. Can you take your profiles and show a new grade line which will keep the gradients within the present maximum limits and figure how much saving could be made in dollars?—A. I could.

Q. That would be all right if it was done in that way?—A. Yes.

Q. And at the same time give them a four-tenths and six-tenths railway?—A. Yes.

By the Chairman:

Q. Do you think that ought to be done for economical construction?—A. I think it should.

Q. Do you think there would be much saving made?—A. Quite a good deal.

Q. It is an important item, is it?—A. Yes.

Q. And the grades are kept unnecessarily high?—A. In places I think so.

By Mr. Gutelius:

Q. Who is responsible for the adoption of the present sub grade line on your division?—A. I say the chief engineer.

Q. Why?—A. Because he is the man that looks after that, as I understand it—the man who approves of it.

Q. Who presented those grade lines to the chief engineer?—A. I suppose the locating engineer.

Q. You received that profile completed and you worked to it?—A. I worked to it.

Q. Without any variation?—A. Yes.

Q. Generally?—A. Yes.

Q. In the location of ditches, what officer says where ditches shall go?—A. The divisional engineer.

Q. Are you satisfied that all the ditches you dug on your division are necessary?—A. I had to get proper drainage; that is, if you want to keep your borrow pits dry, and I believe that was the intention—at least on the Grand Trunk Pacific—that we were to keep our borrow pits dry out on the prairie.

Q. This excessive ditching was caused by draining the borrow pits?—A. Yes, and giving a dry roadbed, as I have always learned.

Q. Was there much classified clay in your drainage ditches?—A. No, I should think it would run about between 20 and 25 per cent.

Q. Of classified material?—A. Of classified clay.

Q. This contract was let first to the G.T.P.?—A. No, to Davis.

Q. First to Davis?—And then to O'Brien, Macdougall and O'Gorman.

Q. And then sublet?—A. Yes.

Q. In that subletting what was the average length of sub contracts, to the fellows who actually performed the work?—A. Between eight and ten miles.

Q. Did they sublet many individual contracts to station men?—A. Yes, it was all pretty much sublet to station men.

Q. What do we understand by station men?—A. Station men are men who build two or three stations and do the work on those stations.

Q. A station is 100 feet?—A. Yes.

Q. And they receive a price per yard?—A. A price per yard.

Q. For material as finally classified?—A. Yes, as finally classified—well, no, I should not say finally classified.

Q. As classified by the engineers?—A. As classified by the engineers; that is, by the divisional engineers.

Q. Does the divisional engineer always pass upon an estimate for station men?—A. Yes; as a general rule, yes.

Q. He should always do it?—A. He should always do it.

Q. Why should not the resident engineer make a classification and hand it direct to the station man?—A. In this way: that I had a copy of these estimates sent to my office, and I looked them over, and I was satisfied that they were correct.

Q. You are satisfied that all estimates given to station men conform to the estimates and classification given to the general contractor?—A. I am.

Q. And to ensure that they do conform, the divisional engineer should join with the resident to prevent any possible variation?—A. Yes, that was always my policy.

Q. In the contracts that have been let to the station men here, what are the rates given to station men generally?—A. I will have to consider it.

Q. .23, .36 and $1.30 is one that we saw yesterday; how does that look?—A. I could not tell you as to the station men very well.

Q. .23, .36 and $1.30?—A. I should think that would be about right.

Q. That is about what they got?—A. About what they should get, or what they did get.

Q. If the station men had received .43, .65 and $1.75, would you still have classified in the same way?—A. Yes, I think I would have. You ask, if the station men would have those prices—the same price as the main contract exactly?

Q. Yes?—A. I suppose I would. It is a pretty hard proposition to run up against.

By the Chairman:

Q. In other words, did you not classify as you did to give the station men a chance?—A. No, I do not think so.

Q. You did not do that?—A. No, I do not think so.

By Mr. Gutelius:

Q. What do you think of the price for cement, $16?—A. I would not give any opinion on it, because that is the first cement I ever had anything to do with.

(N. T. R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN BETWEEN GRANT AND COCHRANE, JUNE 9th, 1912.)

RALPH HOLLAND, sworn:

Examined by the Chairman:

Q. You are an engineer by profession?—A. Yes.

Q. How long have you been in the employ of the N.T.R.?—A. Four years last April.

Q. Always engaged on construction?—A. On the N.T.R., yes.

Q. And before you came on the Transcontinental, where were you?—A. I

was with the Kettle Valley lines in British Columbia from 1900 to 1901, and from 1901 to 1908 I was with the Canadian Northern.

Q. Where were you on the Canadian Northern?—A. I was engaged on the main line to Edmonton and in Quebec and Ontario, the Hawkesbury-Ottawa line.

Q. So that you are pretty familiar with the construction of railroads in Canada?—A. Yes.

Q. What is your position now?—A. Divisional engineer.

Q. How long have you been divisional engineer?—A. Three years.

Q. On what division?—A. Division 4, and then when 5 was amalgamated with 4, I took over division 5, and when division 6 was amalgamated with 4 and 5, I took over the three divisions. That covers 100 miles, all the Fauquier contracts.

Q. Did you become divisional engineer as soon as you came on the road?—A. No, I was 11 months as resident engineer.

Q. Where?—A. First Residency west of Cochrane, Residency number 10.

Q. On Fauquier's contract?—A. Yes.

Q. On the present division?—A. On the present division.

Q. We know from other witnesses how this material has been classified on your division, and we understand that a large quantity of clay has been classified as loose rock, and you were one of those who classified a large quantity of clay as loose rock. Have you practically classified, or revised the classification, of all Fauquier's clay?—A. No, sir, I only classified the first 40 miles.

Q. You have read the specifications?—A. Yes.

Q. You will remember the specification says that clay which may, in the opinion of the engineer, be ploughed with a ten-inch grading plough drawn by six good horses, properly handled, shall be classified as common excavation?—A. Yes.

Q. Did you classify any clay as loose rock which, in your judgment, could be so ploughed?—A. We did not have any test. We classified no clay that we thought could be ploughed to a commercial advantage; that is, by ploughing it, it could be made more easily handled.

Q. You say you made no tests; do you know whether any tests were made?—A. Well, there was one test made at the Mettagami. I did not see it myself, but I saw the result of it.

Q. That was a plough test?—A. That was a plough test.

Q. Where was this plough test?—A. Mileage 134.

Q. Who made it?—The sub-contractors, Videau and Overend.

Q. What did they make it with?—A. Grading plough and four horses.

Q. You saw it after it was ploughed?—A. Yes.

Q. How much did they plough?—A. They ploughed a strip five or six hundred feet long.

Q. How wide?—A. Twenty feet.

Q. Did they turn it over?—A. Parts of it; the plough would jump out.

Q. But, generally speaking, did they turn it over?—A. Yes, they turned it over.

Q. What shape was it in when it was turned over?—A. Just one length; it did not break or crumble.

Q. Do you mean turned over like a piece of rubber?—A. Yes.

Q. How long afterwards did you see it?—A. Next morning.

Q. How long did it take to fall apart?—A. It was picked apart.

Q. How long would it take to fall apart?—A. A week.

Q. It would crumble all up in a week?—A. Some of it, not all of it, some never would.

Q. Does not all this crumble when it is exposed to the atmosphere?—A. Not all; some hardens.

Q. That which does harden will crumble by a blow?—A. Yes, it has a tendency that way.

Q. How long had this surface been exposed to the atmosphere that was ploughed?—A. When I saw it?

Q. How long had it been exposed before it was ploughed?—A. They ploughed it the first thing, as soon as they grubbed it.

Q. Do I understand that this was the original surface of the soil?—A. Yes.

Q. And do you mean to tell me that that stuff turned over and stood like a ribbon?—A. Yes, not a ribbon for two or three hundred feet, but for fifteen or twenty feet it was a ribbon.

By Mr. Gutelius:

Q. Were there any pieces longer than a foot or two?—A. Well, they ran over that.

By the Chairman:

Q. What was the average?—A. Well, they looked to me to be much longer than the plough, and the plough is eight feet.

Q. What did they do with that stuff when they turned it over?—A. They picked it and wheeled it in a dump.

Q. Did you see any of them cross it with a scraper?—A. Yes, we tried to load the scraper, but could not get the stuff in.

Q. Was it moist?—A. Fairly so.

Q. How far down was it? I am taking the datum line to be the grade line. How far was it above the datum line?—A. There was four feet depth.

Q. But where you did the turning over?—A. Two or three feet.

Q. Below the grade line?—A. Below the ground line.

Q. That is where you ploughed it?—A. Yes.

Q. So that it was in low ground?—A. No.

Q. Was it in a cut or on the level?—A. No, on the level, certainly.

Q. Below the grade line of the road?—A. Below the grade line of the road.

Q. Would it have been fair to have ploughed that in a cut?—A. How do you mean fair?

Q. Was this ploughing done on a knoll or in a hollow?—A. Yes, on a slight knoll.

Q. You say what you saw there, although it could be ploughed, it could not be ploughed to any advantage to the contractor?—A. No, sir.

Q. The ploughing was of no advantage to him?—A. No advantage.

Q. And he broke it up with picks and mattocks?—A. Yes.

Q. Can you show me any material of that kind near the surface of this country?—A. I can show you the spot where that was done.

Q. Do you think you could find a place where you could turn over that stuff now with the same result?—A. You could not on the right-of-way now.

Q. But outside of that?—A. You could on the drainage area, I feel certain of that.

Q. Or any part that is not affected by the drainage?—A. Yes.

Q. What percentage of the clay in your district has been classified as loose rock?—A. 70 per cent average; that is in the cuts—70 per cent.

Q. In your judgment the plough test does not make it common excavation, unless it improves the material?—A. No.

By Mr. Gutelius:

Q. You do not consider the clause in connection with ploughing to be a test at all?—A. I considered it in this way, that it has to be a commercial test; it has to render the material in a condition to be handled commercially.

By the Chairman:

Q. Do you know what the sub-contractor is getting for this work?—A. On Fauquier's contract?

Q. Yes?—A. .32 for common and .55 for loose rock and $1.60 solid rock.

Q. What did the station men get?—A. .23 to .27 for common and .40 to .48 for loose rock, and I do not know what the solid was.

Q. Was the most of the stuff taken out by station work?—A. The majority of it, yes.

Q. So that the actual work on the ground cost not half of what the contract price was?—A. It cost the station men's price.

Q. And you have given us the general price paid to station men?—A. Yes.

Q. The station men did a great proportion of this work of grading?—A. Yes.

Q. Was most of the work let to station men?—A. Where possible, it was let to station men, except where they could not handle it in the large cuts.

Q. There would be a good profit in the job, would there not?—A. Well, from the station men's price to the contractor's price there is a big difference.

Q. From the station men's price to the contractor's price is a far call?—A. Yes.

By Mr. Gutelius:

Q. When you first tackled this classification, were you not surprised at the material which was being called common excavation?—A. Not surprised at the material when I first came in.

Q. When you first came in, and found they were classifying clay as loose rock, did that not surprise you?—A. It did, until I saw how it worked. When I saw the actual work my opinion changed.

Q. Supposing the men who were removing the material, whether station men or sub-contractors, had been receiving the same prices as given to the main contractors, would you not still have felt that the classification which they were making was too high?—A. Well, I would have felt that it was on the high side, that it was good classification.

Q. Very liberal classification?—A. Yes.

Q. What convinced you ultimately that it was reasonable classification was that the men who did the work were scarcely able to make wages?—A. What convinced me was that men working by the day for the contractors could not make wages at common excavation prices; that is, day wages, not station men's wages.

Q. At sub-contractors' prices?—A. Yes.

Q. And that the classification would have been liberal if the sub-contractors had received the original contractors' figures. It would have made an easy job at that classification?—A. Yes.

Q. So that the cost of the work to the party who did it has some influence with the classifier?—A. What is that?

Q. The cost of the work to the contractor or station men has some influence with the engineer who makes the classification? Some of our friends have said no it did not, absolutely?—A. In my opinion it had to have.

Q. It must be so?—A. It must be so.

Q. How can an engineer arrive at a conclusion as to comparison of hardness unless he takes into account the labor and its cost?—A. The only way we can get it.

Q. Did these men, after they learned this clay was going to be classified as loose rock, work with the same vim and energy as men that you have known on the Canadian Northern?—A. Yes, I really think they did.

Q. They seemed to do the same amount of work per day?—A. Yes.

Q. This work was very expensive?—A. Yes.

Q. To what do you attribute, as compared with the Canadian Northern construction, the reason for this very expensive railway?—A. Is this in regard to classification or—

Q. Everything; I am going to ask you why this cost so much more money than so many miles of the Canadian Northern would have cost in the same country?—A. The spirit seemed to be that the railway was to be the best built, without regard to expense; that everything for the betterment of the road was to be done, and done at the time of the building.

Q. Now, if the question of expense had been made paramount, the same as on the Canadian Northern, what changes would have been made, so far as your district was concerned?—A. Well, we would have had lighter grades.

Q. Just think of all the things that you would have to change in this railroad to make it the same type as the Canadian Northern, and tell us in your own language?—A. Well, first on the openings, the culverts; where we put in concrete permanent culverts, a cheaper culvert could have been put in, to last for a number of years.

Q. What would it be?—A. Either a cedar box culvert or pile trestle, to take the place of our concrete culverts.

Q. The question of openings would have amounted to a large sum in this first lay-out?—A. Yes.

Q. What next?—A. The next was on the quantities of the grading.

Q. How would you reduce the grade quantities?—A. By using more maximum grades, more sags.

Q. By preserving the maximum of four-tenths east and six-tenths west, could you have introduced sags and momentum grades to advantage?—A. Yes, sir.

Q. Would that have amounted to very much money on your 40 miles?—A. Considerable.

Q. In the matter of ditching, would the Canadian Northern have constructed as many ditches as we have built here?—A. In my idea, it was necessary to put in every drainage ditch we have done.

Q. Would a Canadian Northern divisional engineer allowed you to have dug so many ditches, if they had built this railroad?—A. I think they would have.

Q. Would the Canadian Northern Railway have allowed you to have made the embankments so high across the muskegs?—A. No, sir.

Q. Those embankments could have been lowered and the standard of the road maintained?—A. I think so.

Q. And that would have created another large saving?—A. Yes.

Q. That is clear; the standard of the N.T.R. could have been maintained over your 40 miles and considerable money saved by laying the road-bed lower?—A. Yes, sir, exactly.

Q. You never worked on the C.P.R.?—A. No, I know nothing of the C.P.R.

Q. Did you ever do any contract work yourself?—A. No, sir.

Q. Never interested in any contracts?—A. No, sir.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN AT EDMUNDSTON, JUNE 22nd, 1912.)

R. M. CHARLTON, sworn:

By the Chairman:

Q. You are an engineer by profession?—A. Yes.

Q. And have been engaged in your profession for how long?—A. Fifteen years.

Q. You are divisional engineer on this road in what division?—A. Division one.

Q. What mileage?—A. 150 to 203.

Q. And where were you engaged in railway construction before you came on to the Transcontinental?—A. On the Quebec Central Railway, Toronto Belt Line Railway, Chateauguay and Northern Railway, and Montreal Terminal Railway.

Q. How long have you been in the employment of the Transcontinental?—A. About May, 1905.

Q. Have you been engaged on this division all the time?—A. I was on location.

Q. First on location?—A. Yes.

Q. After the location did you come into this division?—A. No, I came into division three.

Q. You were there for how long?—A. A part of a season.

Q. How long have you been on the present division?—A. 1909.

Q. In making your classification what do you classify as solid rock?—A. Ledge rock and mixed material. Mixed material is boulders in masses.

Q. Divide each of them; what do you mean by boulders?—A. One man stone up and any size in masses.

Q. What is a one man stone?—A. A stone that one man will handle.

Q. When you speak of a stone that one man will handle, you mean that he is able to handle?—A. Yes.

Q. And in masses; what do you mean by that?—A. Well, touching one another.

Q. You do not mean held firmly together?—A. Well, they might be held firmly together.

Q. But you do not mean necessarily held firmly together?—A. No.

Q. If you see a pile of stone which you consider is such a size that one man can only conveniently handle one stone at a time, that is solid rock in your estimation?—A. Yes, all the stones could be handled by one man.

Q. I say where each rock could be conveniently handled by one man?—A. No.

Q. What do you mean?—A. I mean from the size one man could handle up; but if there was only one stone one man could handle I would not classify it as solid rock.

Q. Do you classify as solid rock a mass of stones that one man can handle?—A. No.

Q. Why did you say you did? I wish you would give me your definitions without taking them back, because you said so in the beginning. It is a matter of indifference which it is, but I want you to be definite about it?—A. Allow me to say, a stone that one man will handle in size up to three or four yards.

Q. Then my question to you was, if you find a pile of stone touching each other, each of which one man can conveniently handle, do you classify that as solid rock?—A. No.

Q. What do you class it as?—A. Loose rock.

Q. Then do you adhere to the specification——A. Yes.

Q. Wait a moment; do you adhere to the specification which says that all stones and boulders measuring one cubic foot and less than one cubic yard shall be considered loose rock?—A. I adhere to that when you get one boulder in one place—isolated boulders.

Q. Do you adhere to that when there is more than one boulder in one place?—A. No, I follow instructions issued by Mr. Lumsden.

Q. Do those instructions contradict what I have read to you?—A. No, they interpret it.

Q. Have you those instructions by Mr. Lumsden?—A. I have not them with me.

Q. I wish you would explain to me frankly what you mean by that. Tell me what stones you do class as solid rock?—A. In a cut where it may be all common and a few boulders, if the boulders measure one cubic yard they are solid rock; if they measure three feet they are loose rock, and anything under that is common.

Q. Then you do not classify boulders of less than a cubic yard as solid rock?—A. Except where they appear in masses.

Q. And in what condition are they when they appear in masses?—A. A mass of irregular rock of varying size from half a yard up, or a stone that one man will handle, up.

Q. Which may or may not adhere together?—A. Yes.

Q. How big a stone can one man handle?—A. Usually a stone weighing about 200 pounds.

Q. How big is that?—A. I imagine a stone that would cube a foot and a half, say.

Q. Is that the instruction given to you by Mr. Lumsden?—(Producing instruction.) A. Yes.

Q. Will you show me under that where you get your one man stone?—A. One man stone right in here. (Pointing.)

Q. Is it number 5?—A. Number 5.

Q. Then number 5 on this blue print is rock in masses of over one cubic yard, assembled rock which, in the judgment of the engineer, can be best removed by blasting. Do you allow him any rock in masses which does not require to be blasted?—A. Nothing except boulders, which are removed by a derrick, or something of that kind—stone boat.

Q. You do not blast rock which is not joined together, do you?—A. Yes.

Q. Do you blast rocks which are just packed together, without anything making them adhere to each other?—A. Yes.

Q. That is to say, small boulders?—A. Yes.

Q. You put a charge in among small boulders?—A. To loosen them up, yes.

Q. When they do not adhere to each other; is that right?—A. That is right.

Q. Will you tell me where you find any of that class of solid rock on your division?—A. Do you want a number of instances?

Q. Yes, give me specific instances?—A. Station 8726 to 8735.

Q. What mileage is that?—A. Mileage 165.4.

Q. What do you find there?—A. Pockets of rock and mixed material on the top.

Q. What is the classification in quantities?—A. The percentage of classification in that cut works out to 55 and 45.

Q. 55 what?—A. Per cent.

Q. Of what?—A. Solid, and 45 per cent loose.

Q. No common?—A. No common.

Q. Do you ignore the covering of earth, or do you always take it into consideration?—A. I ignore the first foot of soft stuff on the top, where it is mixed with roots and stone; that is land that has not been ploughed.

Q. What do you allow that as?—A. Loose rock.

Q. Where do you find that authority in the specification?—A. I find where it says that the land cannot be ploughed.

Q. We will deal with that later. Now, where else is there assembled rock?—A. At mileage 171.9.

Q. What do you say about that?—A. The former remarks about pockets of rock apply here also.

Q. Do you say there is no common there?—A. No common.

Q. My note is that there was about a third of that common; you say there is none whatever?—A. I have not returned any common.

Q. Did you examine it yourself?—A. Yes.

Q. Part of it is assembled rock?—A. Yes.

Q. Will you tell me where else there is assembled rock?—A. Shall I give you the ten miles from Long Lake?—A. Yes.

Q. Assembled rock occurs in different points, mile 180 to mile 200—that includes 20 miles.

Q. Can you give me anything where I will find any large quantity of it? Give me two or three instances where it is in large quantities?—A. Station 10,071, mile 190.7, the classification figures out 61 and 39 per cent.

Q. No common?—A. No common.

By Mr. Gutelius:

Q. Was that 61 per cent assembled rock?—A. I have not the details of that here. I have just got the gross quantity. I could safely say, though, that if there were any boulders in the cut, or ledge, it would be included in the 61 per cent. I am not prepared to state whether there is any ledge in that cut or not. I have no notes of it here.

Q. Is the information you are giving based on your personal knowledge, or what you have taken from your books?—A. This information is based on my inspection of the work at different times during the month, while it was in progress.

Q. Is there assembled rock in the cut at mileage 197.5, and if so, how much? A. There is ledge rock 743 yards.

Q. How much assembled rock?—A. Assembled rock, 1,000 yards.

Q. And the cut at 191.8, how many yards of assembled rock?—A. I am taking these notes from a final estimate, and if you will confine yourself to Residency one, I can give you the details; if you require other Residencies, I have not the final.

Q. Where does Residency one run?—A. From mileage 193 to 203.4.

Q. What assembled rock was there in the cut at mileage 1904?—A. I will have to correct that again. I have just got one contract here final, contract from Long Lake Narrows, and it is from mileage 195.

Q. What assembled rock is there in the cut at 197.5? The cut seems to contain about 4200 yards all told?—A. I have a cut here of 3900 yards; is that the one?

Q. It is given here 1,000 yards solid and 2,300 yards loose?—A. Yes; 4272; the ledge is 239 yards and the assembled rock material 635.

Q. Is there any other solid?—A. Yes, there is sub-grading 74 yards; there was ledge in the bottom of that cut and ten yards in the cut ditch; surface boulders 89 yards. I am not giving you the fraction of a yard.

Q. 196.4; what are the various kinds of solid rock?—A. Ledge rock 1725 yards.

Q. This cut only has 1700 yards in it?—A. This is 196.4; ledge rock 1725 and rock outside the slopes 705; that is still ledge.

Q. That is like overbreak?—A. Yes.

Q. Which was allowed?—A. Yes. Sub-grade 373 yards of solid and a cut ditch 12 yards of solid and 39 of boulders.

By the Chairman:

Q. Was there any common there at all?—A. No, no common in that cut.

Q. And no assembled rock in that cut?—A. I gave you the assembled rock, I think 1096 yards.

Q. No, there is no assembled rock?—A. Oh, no; there is no assembled stuff. If it is not large enough to be classified as solid rock it goes in as loose; there is 1096 yards of it.

Q. Do you classify all the shale in your district as solid rock?—A. Yes.

Q. All shale?—A. Yes.

Q. Is there any of the shale that could be taken out, or was it taken out without blasting?—A. No.

Q. Not any on top even?—A. I do not know of any. I would have seen it if it had been possible to take it out.

Q. Have you any conglomerate in your district?—A. Will you define the term?

Q. I am taking the instructions, conglomerate rock and plum pudding stones, number three of this blue print?—A. Is that cemented?

Q. I do not know. Have you found anything that you bring within that definition?—A. I have seen such material.

Q. Is there any in your district?—A. Yes.

Q. Where?—A. It applies to pockets in these cuts you have already information on.

Q. Can you tell me which they are? I want it specifically. I will ask you to give me a reference to one or two of them?—A. At about mile 171.9.

Q. Is that rock cemented together?—A. I should not like to say that it is cemented together, but it is pretty solidly packed with material between it, very hard. It will stand—a face will stand.

Q. But it is not cemented together?—A. It is cemented to a certain extent.

Q. Is it cemented or is it not? You are swearing to this. You know, as an engineer, what cemented is; is it cemented together?—A. I would like to find you a good instance.

Q. I should like you to answer the question?—A. I am trying to think just how that material is there. I know the rock is there in pockets, but it is very difficult for me to say from memory just if it is cemented or not. I know that it will stand a face.

Q. Will you class it as conglomerate if it is not cemented together?—A. Allow me to say that I would classify the rock that is in pockets there under either three or five of these instructions.

Q. That is not the question I am asking. Will you classify rock as conglomerate which is not cemented together?—A. No.

Q. Will you classify rock as masses which is not cemented together?—A. Yes.

Q. Will you classify rock as solid which lies in masses not cemented together, but embedded in other material?—A. Yes.

Q. Will you tell me where you have done that?—A. I have done it in all instances of those cuts, the notes of which you have taken so far.

Q. Which cuts do you speak of?—A. I have not kept a note of them.

Q. You mean that I have taken so far to-day?—A. Yes.

Q. Then you necessarily measured as solid rock the material in which these stones are lying?—A. Yes. If a stone is isolated, the stone is measured; it would be a boulder; if it were in masses, the mass is measured.

Q. Including in the measurement the material lying between the stones?—A. Yes.

Q. And how are those stones taken out?—A. They are, first of all, blasted, to loosen them. The large ones are bulldozed.

Q. What does that mean?—A. That means exploding powder on the top of them, or drilled.

Q. And then?—A. Then they are removed in some instances by derrick on to cars and carried to the dump.

Q. And in others?—A. Put on waggons, dump carts, broken up small enough for several men to handle; they are put on a stone barrow.

Q. Those are all very large stones you are speaking of?—A. I am speaking of the classification such as I have described to you.

Q. Do I misunderstand you when I infer that you mean that you allow as solid rock stones of any size lying embedded in other material which requires blasting?—A. Well, I have no instance of that.

Q. The stones you speak of are how large?—A. From one and a half cubic feet up; it might be two or three hundred cubic feet, four or five or six yards.

Q. You told me that you ignore the earth covering when it is full of roots? A. Yes.

Q. They prevent it from being ploughed?—A. Yes.

Q. Do you allow grubbing in that material?—A. No; grubbing is allowed according to the specification; I think it is there feet.

Q. You allow grubbing in that material; does not the grubbing take the roots out?—A. Yes, the grubbing takes the roots out.

Q. Could you plough the material?—A. If it were grubbed?

Q. Yes?—A. In some instances, if there were not too many surface boulders.

Q. I am not talking about surface boulders; you told me you disallowed it as common when it was full of roots?—A. Yes.

Q. Now, you pay the man for taking the roots out, do you not?—A. You pay the man for grubbing up to two feet.

Q. I am speaking of earth which is lying over the top of the rock and may go two or three feet in depth. I want to know if you ignore that, and you tell me you do when it is so full of roots that it cannot be ploughed?—A. Yes.

Q. The man gets paid for taking the roots out, does he not?—A. Yes.

Q. When he takes the root out the material is left there?—A. Yes.

Q. Then the material has to be removed. Do you put that in as common? —A. No.

Q. What do you put it in as?—A. It goes in possibly with the balance of the cut, whatever it is classified.

Q. That may make a serious difference in the classification, may it not?—A. It will make a slight difference.

Q. You should not do it, should you?—A. I believe I am doing right.

Q. By what authority do you say that?—A. Because it is impossible for a man to plough perhaps ten or fifteen feet.

Q. What do you mean by ploughing ten or fifteen feet?—A. Well, he would run up against boulders he would have to get round; he could not get his plough in to plough it.

Q. Do you mean to say that, although the material itself is ploughable, that because a man will encounter the boulders on his way, that you allow that as solid material?—A. Stripping, yes.

Q. I pointed out to you, did I not, the place where, at about mileage 194, there was 19,700 yards of solid in that?—A. What information do you desire in that cut?

Q. You remember you and I examined that spot together?—A. At mile 194?

Q. Yes?—A. Yes.

Q. Do you remember my asking you at that time whether there was not one to two feet of common excavation on top of it?—A. I will just give you the account of it—

Q. Did I not ask you on the ground if there was not one to two feet of common on top of it? Do you remember my asking you on the ground, when we were examining it, whether there was not one to two feet of common on top of that?—A. I do not remember the question particularly.

Q. Don't you remember me asking as to that one place?—A. I remember you asking me at one place; I do not remember if that was the cut.

Q. Do you remember my asking you at one place at which you said there was?—A. No.

Q. You do not?—A. I remember saying at several places that there was; I do not remember you asking me the question.

Q. Do you remember my asking you at any place if that was not common on top of that rock from one to two feet, in which you answered to me that it was so? I hope you are going to be candid?—A. I desire to be candid.

Q. You know you and I went over that very place, and I went up on top of it and examined it, and pointed it out to you, and you agreed; you remember that, do you not?—A. I do not remember that.

Q. Do you remember my pointing it out to you and your saying that there was a quantity of common on top of any cut?—A. Yes, I think I remember saying something about that.

Q. I suggest to you that it was at 194; how much common did you allow there?—A. I think it was 150 yards of common.

Q. If there is a foot of common over that cut how much should you have allowed?—A. It is a pretty long cut. I should figure it for you. That cut is just about 1,000 feet long.

By Mr. Gutelius:

Q. About what would the average width be?—A. It is rather difficult to say; it is not one you can average very conveniently.

Q. Say that it will average 12 feet high; fifty feet wide on top?—A. Well, following out that, it would be two yards to a foot, approximately, or 2,000 yards.

By the Chairman:

Q. If I am right in saying that there is a foot of common on there, your classification is entirely wrong, is it not, at that place?—A. If you are right, I am wrong.

Q. You are entirely wrong, to a very great extent. Would you look up and tell me in your book what the total classification of that cut is?—A. 13,600 yards solid and 150 of common. You might make a note that my quantities do not correspond with your quantities. There may have been a subsequent estimate. I have not a note of it here.

By Mr. Gutelius:

Q. Both estimates agree in the 150 common?—A. Well, then, there is a subsequent estimate, and I am inclined to say that your figures are correct.

By the Chairman:

Q. Have you your resident engineer's book on that?—A. No.

Q. Did the resident engineer make that classification?—A. Yes, assisted by myself.

Q. Did he keep a record of it?—A. That I cannot tell you; he should have kept a record.

Q. Is it not his duty to do so?—A. Yes.

Q. Did you go personally over the classification with the resident engineer?—A. Yes.

Q. Did you govern in the judgment?—A. Assisted by him.

Q. Did you govern?—A. Certainly I governed.

Q. He did not make an estimate himself and return it to you and you afterwards go and examine it?—A. I examined it before.

Q. Did he make a classification of any of this division independently of you?—A. Yes.

Q. Of this particular part, did he?—A. Yes.

Q. And did he put it in writing?—A. No. I have asked him in walking over the line, "What is your classification for this material in a certain cut?"

Q. I want to know if the resident engineers made any independent classification in writing in their residencies?—A. No.

Q. Did they keep any records themselves of classification?—A. Yes, they kept records.

Q. Were those records dictated to you or made by themselves, without your intervention?—A. Made by themselves.

Q. Then they did keep records and they did make them independently of you?—A. Yes.

Q. Who is the resident engineer in this place?—A. There are three.

Q. Who are they?—A. G. Lemesurier. J. H. Laflamme and J. P. Menard.

Q. Where are these men now?—A. I do not know where Lemesurier is, or where Laflamme is; I understand Laflamme lives in Quebec. He can be reached. Menard is on the work.

Q. Up here?—A. Yes.

Q. What becomes of these men's record when they leave the work?—A. Supposed to turn in their records.

Q. Who has them?—A. They would be turned over to the man who takes the Residency. You see Laflamme would turn them over to his successor.

Q. Are there any resident engineers on these works now?—A. Yes.

Q. And they are supposed to have them?—A. Yes.

Q. Will you ask the resident engineer on this section to send in the resident engineer's record of this cut 194?—A. Yes.

By Mr. Gutelius:

Q. Who was resident engineer at the time you made the classification on this cut 194?—A. There were two men at different times. Le Mesurier was first and then Laflamme.

Q. I understand you to say he would have his own independent record of this cut?—A. Yes.

Q. Did you correct any of their classification?—A. Yes.

Q. Did you raise their classification?—A. In instances.

Q. Can you recall any important instances in which you did?—A. No. Wherever I thought the classification was not sufficiently high, I instructed the resident engineer to give them what I thought was proper.

Q. Take 190.9; how did you make up the solid rock there?—A. That is not final, and I have not the notes of it in detail, such as I have of the other Residency.

Q. What can you give me in that?—A. All I can give you there is the general classification, which is 61 per cent solid and 39 per cent of loose.

Q. I have got it very much different from that; I have it 14,300 yards of solid, 2,400 of loose, and 791 of common?—A. Perhaps we are not on the same cut.

Q. This is cut 190.9?—A. It is the adjacent cut; instead of 190.09 it is 191.1.

Q. What have you there?—A. I have 14110 of solid, 1330 of loose, and 791 of common.

Q. Can you tell me what the solid is there? My note is that this should be all common and loose. It is cleared behind it, and I saw no solid in it at all? —A. Well, I have not got any further detailed notes of that cut.

Q. You have nothing that you could enlighten me on in that?—A. No, I have nothing.

Q. When you make up your final what do you do? Go over it again?—A. No, it is taken from the field notes.

Q. Who has the field notes?—A. The resident engineer.

Q. Those field notes are what we want to see. Are those field notes made up in consultation with you, or independently of you?—A. By my instructions, and sometimes independently of me, if it is an important cut.

Q. Why does he not do it himself and then submit it for your revision?—A. Well, it would entail too much work, possibly, if he had to revise it.

Q. Is there any use of his being there at all? What use is the resident engineer?—A. The resident engineer lays out the work and conducts it.

Q. He is no use in regard to the classification at all, is he?—A. Yes, he consults me about his classification, and I ask him what the material has been since my last visit, and we decide what is going to be the classification for the work that has been done so far.

Q. As to overbreak; did you make any deductions for overbreak?—A. Yes.

Q. In many cases?—A. In all instances where the overbreak could have been avoided.

Q. How did you judge as to whether it could be avoided?—A. Well, where it was a slide or vein or bed.

Q. Did you see it done yourself?—A. No.

Q. Had you any more opportunity for judging it than anybody else has?—A. No.

Q. Then you had to exercise your best judgment, viewing the cut afterwards?—A. Yes.

Q. I understand from you that some of your fills are made with rock borrow; that is right, is it?—A. One fill.

Q. That is the fill along Long Lake?—A. Yes, Long Lake Narrows.

Q. And for that the contractor was paid the price $1.65?—A. $1.85 a yard.

Q. For that borrow?—A. Yes.

Q. On what authority was he paid that money?—A. An extra work order.

Q. Have you a copy of the extra work order?—A. No, there is a copy attached to the progress estimate. It was made in duplicate, I believe, and there is a copy in Ottawa and a copy in Quebec.

Q. By whom was that extra work order made?—A. Mr. Grant, I think.

Q. The engineer in chief?—A. Yes.

Q. But, at all events, wherever you made that allowance, it was made under the authority of that order?—A. Yes. I am not quite certain, but I think the number of the order was 196, if that would assist you in hunting it up.

By Mr. Gutelius:

Q. Refer to the profile, 201 to 203. In the interest of economy, could the grade have been laid lower than it was built?—A. I do not like to criticize this work, Mr. Gutelius. I did not do the location. I have not studied that question.

Q. Would lowering the grade of the profile have reduced the quantity of material in those fills?—A. If it had been possible to reduce the grade, the

quantities in the fills would have been reduced and the quantities in the cuts increased.

By the Chairman:

Q. The quantities in the cuts increased?—A. Yes.

By Mr. Gutelius:

Q. And the relative amounts of filling are very much greater than the relative amount of cut?—A. Yes, that is as it appears on the profile.

Q. It would be possible for our engineers at Ottawa to figure in dollars what the difference would be from the profile and cross-section?—A. Yes.

Q. You remember the cut in which the photograph was taken, assembled rock, 189.42; 4,000 yards of solid, 200 loose and 300 common?—A. Yes, I have it here.

Q. You remember the cut at 189.4, where a photograph was taken of some assembled rock, in which your picture and those of the Commission appear?—A. Yes.

Q. The boulders embedded in that clay-like material were about what you would call one man stone?—A. Yes.

Q. Is that a fair sample of assembled rock under your classification?—A. Yes.

Q. Those individual stones on that hill side could have been taken out with a pick and bar?—A. Yes.

Q. Was all overbreak in the shale rock cuts on your division turned in as solid rock, or all loose rock?—A. Would you like an instance?

Q. Better answer me generally, if you can. Could there have been any overbreak in shale that came down that you would call solid rock?—A. Yes, and there is some came down that I would classify as part loose. You mean overbreak?

Q. Yes?—A. From excessive use of powder?

Q. Yes; was there legitimate overbreak classified as solid rock, regardless of its condition when it fell into the cut? Did you give him it all as solid rock?—A. Yes.

Q. Where it was legitimate overbreak?—A. Yes.

Q. Regardless of the condition in which you found it in the cut?—A. Yes. Of course you could not tell what part of it came off there, because it left it and dropped. It was not taken out in benches.

Q. After the shale was broken up by powder, was it not frequently easier to handle than loose rock?—A. Some of it came down like little laminations, that you could shovel right into the cart?—A. Yes; some came down in masses, which required other blasting.

Q. But there was a portion, after the blasting was over, that was small enough to handle immediately with a shovel?—A. Yes.

Q. You did not take that into account; you gave them solid rock?—A. Yes, gave them solid rock.

Q. Both for the centre cut and for legitimate overbreak?—A. Yes.

Q. That is, you gave some legitimate solid rock overbreak which in the cut was loose rock?—A. I do not quite understand that. Where the form of the cut is solid, take legitimate overbreak, say on a seam or something of the kind, coming into the cut on overbreak—that is overbreak, and it is paid for as solid rock.

Q. And it loosened it up so that it could be taken out with a steam shovel, and much of it with a hand shovel, still you gave the overbreak as solid rock?—A. Yes.

Q. The specification in the matter of overbreak reads——A. I think it is the classification of slides, is it not? I remember it.

Q. Clause 38 of the specification says, "The classification of material from slides shall be made by the engineer, and will be in accordance with its condition at the time of the slide, regardless of prior conditions?" Do you understand that that means its condition after the shot has been fired?—A. Regardless of previous conditions, yes; previous conditions means previous to the shot being fired.

Q. Then you have classified in legitimate overbreak solid rock which, under this classification, ought to have been called loose rock?—A. Well, a percentage of it. I can give you the percentage.

Q. You have given some percentages of loose rock?—A. Yes.

Q. In legitimate overbreak?—A. In legitimate overbreak. I can say generally always 25 per cent.

By the Chairman:

Q. You said distinctly you classified it as solid rock?—A. I understood Mr. Gutelius to ask me if solid rock had been given.

Q. Stuff that could be moved by shovel?—A. Solid rock that had come down in a cut in a slide, and some parts of it could be handled with a shovel, and he asked me if I had given solid rock classification.

Q. You should not have answered the question till you understood it. You were asked distinctly whether or not you had given solid rock classification for material which, after a shot, could be moved by shovelling, and you said yes. What do you say now?—A. I still say yes. I would like to clear it up. Take legitimate overbreak: take, for instance, a cut; it is not a seam, but it is a foot or so wider than our diagram classifies; it is a little more than a quarter to one slope, and where the man has broken that, and say a foot or two feet wider, I have given solid rock.

Q. No matter whether it was pulverized when it fell into the cut?—A. No matter whether it is pulverized when it is in the cut, because I consider the cut has been taken out as closely as it is possible to work. That would cover the places where the solid rock has been given in overbreak.

By Mr. Gutelius:

Q. Then in those shale cuts where blasting reduced the material so that it could be shovelled without picking, you did give legitimate overbreak as solid rock?—A. I would like to give you one instance.

Q. Answer the question?—A. I cannot answer it in a general way.

Q. Better try and answer it?—A. I have allowed solid rock in overbreak where the overbreak has not been excessive and beyond the control of the contractor, and in small quantities or in small cuts, some solid rock has been allowed.

Q. Regardless of its condition after the shots are fired?—A. Yes. Can I go on, further?

Q. Anything you like?—A. In a number of instances where considerable overbreak occurred, it has been returned at a percentage of loose rock. You understand what I mean is that some solid and some loose has been given. It has been classified. Is that clear to you?

By the Chairman:

Q. I think I understand you, that you have not allowed overbreak, excepting legitimate overbreak, at all: is that right?—A. Yes.

Q. That you have described to us what you consider legitimate overbreak, I am talking now of shale cuttings?—A. Yes.

Q. And that, although that overbreak has come down into the cut after the shot in such a condition that it may be moved by shovels, you have sometimes allowed it as solid in small amounts?—Yes.

Q. And in others you have allowed it as loose rock?—A. Yes.

Q. Why did you allow it as loose rock if it could be shovelled like earth?—A. I should say common practice.

Q. What you have done you have done, and we want you to tell us. Your judgment may have been wrong and it may have been right. There is a man above you always to see your classifications are properly supervised, just like you are above the other men. I am not making any reflections upon you. I am asking you just to ascertain what you did do. It is your judgment, it is your classification, and if they do not like it they have a right to revise it, so that there is no use in not being candid about this matter. You say in that case you allowed it because you considered it is the custom to do so?—A. Yes.

Q. Do you say that where you allowed that what I consider is a substantial matter, where you allowed this earth on top of these cuts as solid, where you say the roots were in it—do you say you were following custom in doing that?—A. Yes. You might correct that. There is a certain part of that material in all those cuts which is loose rock.

Q. What I am speaking of is the plain case, that any man can see, that I went over myself?—A. Soft material overlying the hard rock?

Q. Yes, it is not only soft material, but a light sandy loam, and the fields are actually ploughed alongside of it, and there is no common allowed there. I want to know why that is done?—A. Well, I am following common practice.

Q. And if the fields could be ploughed that could be ploughed, could it not?—A. It certainly could. You refer still to that big cut?

Q. I refer to half a dozen that I found in that condition?—(No answer.)

By Mr. Gutelius:

Q. Is your classification entirely in accordance with your personal ideas as an engineer based on these specifications?—A. My classification has been made according to my best judgment and reading of the specification, and has, in some instances, been revised and reduced by my superior officer.

Q. Was it ever increased by your superior officers?—A. Yes.

Q. Will you give us an instance?—A. Cut, mile 165.4, my classification was increased in that cut.

Q. What was done?—A. My classification was increased.

Q. What did it consist of?—A. The overlying stuff over the rock. There was ledge in the cut; it was mixed with boulders; pretty hard material.

Q. The solid rock was increased?—A. Yes.

Q. How much?—A. About ten per cent.

Q. Were there many instances of that?—A. One or two. I think I can give you another one here, a cut that you noticed particularly, at mile 167.5; that is that big cut on the east side of the Boucanne River: the overlying material was classified by the inspection party; my classification was increased slightly.

Q. More loose rock?—A. More solid rock.

Q. This was a shale cut—shale rock?—A. No, that is pretty hard rock.

Q. The solid rock was increased?—A. Slightly.

Q. Can you give no idea of the number of yards?—A. I can give you a better idea of the percentage. It would make a difference of 1400 yards in the cut.

Q. Increase of 1400 yards possibly of solid?—A. Yes.

Q. You spoke of your superior officers coming along over the cuts. Did they make a special trip on classification?—A. No. My work was visited.

Q. Who were the people who revised your classification by examining the ground?—A. I received my instructions direct from Mr. Doucet.

Q. Who was with him on that trip?—A. I am speaking generally of several trips.

Q. Well, usually?—A. Mr. Huestis and the G.T.P. inspecting engineer, Mr. Fotheringham.

Q. Did the G.T.P. engineer object to this increased classification which you have told us of?—A. No.

Q. He concurred?—A. Yes.

Q. If left to yourself, you would not have given that extra classification?—A. No, I would like to qualify that. I wanted some instructions on that material, because I had difficulty in classifying it. I could not make up my mind just what I should return it as.

Q. You were the engineer in charge of the location of the one per cent pusher grade?—A. I ran a preliminary line.

Q. Not more than the preliminary?—A. No.

Q. Who ran the final location?—A. E. B. Bartlett.

Q. At mileage 168 to mileage 170; in the interest of economy, could the railway have been built cheaper by laying further south along the hill; just say generally?—A. The fills may be reduced by removing the line up hill.

Q. The amount of yards and money to be saved could be figured from the data that they have in the office?—A. Yes.

Q. Contours and profiles?—A. Yes.

Q. Did you ever consider in the specification that the clause with respect to ploughing was merely a test of the hardness of material?—A. No. I consider it as a method to take out the material.

Q. If you had been instructed that this ploughing clause was a test only, would it have influenced you in your classification?—A. No.

Q. It would not have influenced you?—A. I do not think so. I followed the general practice.

Q. You would not adopt a specification whose wording varied from the general practice?—A. Certainly I would adopt the specification where it varied from the general practice.

Q. But in this case you paid no attention to the plough test?—A. No, I considered it impossible to plough it—to take out the cuts by ploughing.

Q. But we read this to be a test of hardness of material, the same as driving a pipe into material would be a test?—A. Yes.

Q. But you threw it aside?—A. Let me read the clause. (Witness reads clause).

Q. If it was a test, you did not use it?—A. No, we did not.

Q. In the assembled rock it says "Which, in the judgment of the engineer, can best be removed by blasting." You paid no attention to the blasting feature in connection with your assembled rock?—A. Will you explain what you mean?

Q. You allowed assembled rock where rock was found in masses, whether it was taken out by blasting or not?—A. The method of the removal of the rock did not influence my classification.

Q. Mr. Lumsdon in his instructions says "Which, in the judgment of the Engineer, can best be removed by blasting"?—A. Yes.

Q. The blasting feature cut no figure with you?—A. Let me qualify that. For instance, if there was a rock of twenty cubic yards, a boulder, I classified that as solid rock. If the contractor desired to take a derrick and take it out, or roll it into the embankment, or remove it in any way without using powder, it did not influence me. I classified according to the material.

Q. But give us an instance in assembled rock where it was taken out with a pick without blasting, and still allowed as assembled rock?—A. There is no instance of that kind.

Q. Then the case where the picture was taken is not a typical case of assembled rock?—A. Those rocks right on the side there would have to be loosened and have been loosened by blasting.

By the Chairman:

Q. That sort of stuff?—A. Yes.

Q. I am astonished that you say it would have to be blasted. It is common earth in between?—A. Well, it would have to be loosened; that is the cheapest way.

By Mr. Gutelius:

Q. Could that stuff not be worked out of a face, one rock after another, rolled down in there and rolled on to the stone boat, and taken out without any shooting? There is always one loose rock in a face that you can get at?—A. Yes.

Q. And then its neighbour loosens?—A. The stuff surrounding the rock is so hard that a man would move very little of it in a day picking, if he could pick: and imagine, before these things are lossened by powder, how tightly they are packed together. Men cannot get hold of them: some of them we had to blast.

Q. Only some of them had to be blasted?—A. Yes.

Q. The great majority of assembled rock on your district could have been removed without blasting: is that not so?—A. No.

Q. I say "could have been removed": the great majority of it could have been picked round and pried out with bars? Be candid with us?—A. A percentage of it.

Q. I am not after you: I am after the facts. I will go one step further. Could not every yard of assembled rock that you passed on your division have been taken out by picks and bars and derricks, without a stick of powder?—A. No.

Q. Could you not remove a mass of rock less than a cubic yard without powder?—A. Yes.

Q. Was not all assembled rock less than a cubic yard?—A. No.

Q. In the individual pieces?—A. No.

Q. Did you disregard your solid rock specification in rock larger than a cubic yard?—A. In what way?

Q. By not classifying as solid rock boulders or pieces of rock larger than a cubic yard?—Are they not all solid rock?—A. I do not quite catch the idea?

Q. You are not following me—apparently unwilling—A. Well, I am desiring to give you everything that I possibly can.

Q. Every boulder rock larger than a cubic yard is solid rock under the specification?—A. Yes.

Q. Then it necessarily follows that it is not assembled rock?—A. Well, I am classifying it differently. I am calling it ledge and boulders. It does not matter to me whether the boulder is as big as the car: if it is a boulder, it is a boulder.

Q. Ledge and boulders are clearly distinct from assembled rock in your classification?—A. The assembled rock is boulders, is it not, under a yard size.

Q. If it is over a yard it is solid rock?—A. Yes, if that is the way you interpret the specification.

Q. I want your impression of it?—A. When I go into a cut, and there is a mass of boulders there, independent of their size, I classify it as mixed material, assembled rock, and if there were two or three boulders measuring a yard or over a yard, I would pick them out and set them aside as solid rock, to be counted in with ledge. I would take them all in with my mixed material as assembled rock.

Q. If this term assembled rock had never been created, how would you classify a mass of boulders and small stones such as you have described?—A. Boulders.

Q. You would measure those over a cubic yard?—A. Yes.
Q. And under a cubic yard?—A. I would follow the specification.
Q. And that would be?—A. Loose rock.

By the Chairman:

Q. Then it comes down to this: that if you have classified that material described by Mr. Gutelius to you as solid rock, it is because you were so directed by numbers three and five; and if three and five had not been in the sheet accompanying Mr. Lumsden's instructions, you would have classified it as loose rock?—A. The proportion under three feet would be loose rock and the other solid.

By Mr. Gutelius:

Q. Was that Boucanne crossing where the tangent was on the bridge?—A. Yes.
Q. You are familiar with the bridge and approaches over the Boucanne River?—A. Yes.
Q. If curvature had been allowed on that bridge, could a more economical location have been secured?—A. I believe so.

By the Chairman:

Q. You do not want to go any further?—A. I do not want to make any suggestions.

NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATING COMMISSION.

Before George Lynch Staunton, K.C., Chairman, and F. P. Gutelius, C.E., Commissioner.

(Evidence taken on the train, on the line of the N.T.R., near Allen Siding, at mile 41. July 13th, 1912.)

PETER WARREN WENTWORTH BELL, sworn

By Mr. Gutelius:

Q. Give us a short resume of your education and experience?—A. I was three years at the Royal Military College. Earlier than that, I was educated at Port Hope, and I was about three years with the C.P.R. on various works, the survey from Renfrew to Parry Sound, and then on construction on the Lake Temiskaming Colonization Railway.

Q. As resident engineer?—A. No, I was just ordinary leveller. I was leveller for the Kingston, Smiths Falls and Ottawa under Mr. Nash for a summer—four or five months, I do not exactly remember—and I was a year with Mr. Leonard on the St. Lawrence and Adirondack as resident engineer, and went out west, and eight or nine months on railway work with the Horne Payne outfit, private syndicate, of British Columbia, and I was engaged in placer work for a couple of years as assistant engineer, with a man named Carey, who was doing some work for an English syndicate. I went out to Africa with the troops, and was engaged in working under Major Hodgins for a year and a half or two years, I am not sure which, and then was employed as Superintendent of Construction by the Relief Works of the Orange River Colony Government, going in

railway construction. I also worked with the Johannesburg municipality, and for a contracting firm called Wills & Lyles; came out here in 1906, and have been with the N.T.R. ever since, as resident and divisional engineer; resident engineer since December, 1908.

Q. What Residency have you?—A. I have division Number Two.

Q. With reference to the cut between stations 1260 and 1270, mileage 1624—you know the cut?—A. I know the cut.

Q. That cut was classified as having 90 per cent solid rock?—A. Yes.

Q. From its appearance, it would seem that this solid rock must have consisted of many boulders less than a cubic yard: what have you to say about that—A. Well, it would appear so, from the appearance of the cut now; but, as I told you, our classification in that cut was raised, and was raised on the understanding that the solid rock occurred in masses. Masses of boulders were treated as solid rock.

Q. But if those individual boulders less than a cubic yard had been taken out individually, you would not have allowed as much solid rock as this estimate shows?—A. No, possibly not. When this cut was first classified the resident engineer and myself thought that sixty per cent solid and forty per cent loose would be about right. In my judgment, I thought as we did it, that it seemed fair enough, but then Mr. Poulin was a man of considerable experience, probably far more experience than I had: also he was my superior, and, naturally, I was willing to bow to his judgment, especially, as I say, the Grand Trunk engineer, I am practically positive, agreed with him to that classification, and I changed the classification, under the direction of Mr. Poulin, from sixty to ninety per cent solid.

By the Chairman:

Q. Had you any reason to change your own opinion from what you saw at any time throughout the work in that cut?—A. Well, there was not a great deal remaining: there was not much room for change in opinion: there was not at any time, from that time on, a great mass of material to come out.

Q. Then you simply deferred to your superior's judgment?—A. Yes, pretty well.

By Mr. Gutelius:

Q. With reference to the cut at mile 26, was that cut classified in the same manner as the one you have just described?—A. Well, no, I should not say so. This cut in question here was classified, as nearly as possible, the amount of boulders; first we practically came to the conclusion that it was pretty nearly impossible to keep track of the boulders, to accurately measure them as they were shot out. In the coyoting and blasting there were some broken and some blown out, and it was pretty hard, after that mass was lying in there, to measure up the boulders. The boulders in a certain portion of it were measured, and two or three times I believe this was done, and that proportion of rock was taken as going through the cut.

Q. Do you feel that that was the same classification as you would have made had the cut been taken out by picks and bars, and each individual boulder being measured?—A. Well, it is pretty hard to say that.

Q. Do you feel that that is about right?—A. My opinion is that that cut is correctly classified. I do not think that there is too much rock in it.

Q. I refer to 29.1. The impression which I received in looking over that cut is that the item of loose rock is high. It looks at present like a gravel bank. What do you say as to the 5800 yards of loose rock?—A. Well, I say that the whole of the west end of that cut consisted of masses of boulders, small boulders, and, further that in many places those boulders were practically tied together with what was almost cemented gravel. It was very hard to take out. Possibly many

of those boulders might measure a foot, but under the interpretations that we have been accustomed to as regards that loose rock classification, I hold that I was perfectly justifiable in returning that as loose rock.

Q. But you think that a trench six feet deep on the high side of that cut would expose the class of loose rock that you have described?—A. Down the face of the cut?

Q. Back from it, on the side?—A. Do you mean from the top of the face down, and trench up the cut?

Q. Yes.—A. I would prefer to see it tested parallel with the cut.

Q. Answer it in a general way: six feet in?—A. I would prefer the test to be more thorough than that. Do I understand you that that trench starts at the top and going down the face of the cut?

Q. Yes, and six feet in. Should that expose this class of material?—A. I should think that would show up considerable. I further think that a test parallel to that existing cut would be a fairer test and would tend to show up the material the cut is composed of better.

Q. It is proposed that you, with Mr. Aldred, make a test of that portion of the cut, using both of these methods?—A. Those methods only—just confining ourselves to those methods?

Q. I do not care. I want Mr. Aldred to say that he concurs, or that he does not, as a result of actual working on the job?—A. Yes.

By the Chairman:

Q. I understood that you made the classification of stones which were smaller than a foot because they were lying in masses. I want to see if I understand you correctly? State it in your own way?—A. If I found, as I said to Mr. Gutelius, the boulders were, many of them, 18 inches through, and some of them two feet, and others smaller, from seven and eight to ten inches up, and they were lying together, it was impracticable to do anything else with them, in my opinion, but hand them in as loose rock.

Q. Did you do that in your own discretion, or under any instructions that you got? Were you acting on your own judgment, or were you endeavoring to follow any instructions that had been given to you outside of the specification?—A. Well, I cannot remember any definite instructions. My idea about that was that it was impossible to plough that material, it was loose rock.

By Mr. Gutelius:

Q. Under the specifications?—A. Yes.

By the Chairman:

Q. If you had a collection of stones which were, half of them, less than a foot, and half of them more than a foot, would you classify all those as loose rock because you could not plough them?—A. I think so.

Q. What do you make of the specification which says in 35, "All large stones and boulders measuring more than a cubic foot and less than one cubic yard shall be classified as loose rock"? and then, second, "All loose rock, whether in situ or otherwise, which may be removed by hand, pick or bar": how do you read those two statements in 35?—A. Well, I read it this way: I read it practically there as it is written, it seems to me.

Q. Take each one by itself?—A. "All large stones measuring more than a cubic foot and less than one cubic yard"—those are measured stones.

Q. Those are stones that are to be measured?—A. Yes—all loose rock, whether in situ or otherwise.

Q. What do you call that?—A. I think I would be justified in calling that, if that came in such shape that it could not be ploughed, I would be justified in calling material of that description loose rock and classifying it as such.

Q. Where does it say that it is to be ploughed at all? That is the trouble I have?—A. Where does it say it is not to be ploughed?

Q. But where does it say it is to be ploughed? Do you read the statement "all large stones and boulders that cannot be ploughed" as one? Do you think the man who drafted this meant that?—A. If he did not he should have altered it.

Q. Do you think he did?—A. Certainly, by the way he has written it.

Q. I understand you, first, that you consider that the plough test applies to stones?—A. I think I am justified from this specification.

Q. I want to find out?—A. I think I am justified in saying yes.

Q. I want to find out how you were informed when you made your classification. Then you think that your first enquiry would be to see whether these stones and boulders could be ploughed?—A. No, not of necessity. For instance, if they were scattered through there—

Q. Take stones and boulders: the plough test applies to stones and boulders?—A. What is your question?

Q. I ask you if you consider that the plough test applies to stones and boulders under your construction of section 35?—A. Well, no, but I cannot imagine—

Q. Do not depart from it: let us stick to that. You do not consider it applies to stones and boulders?—A. Not under all circumstances.

Q. Do you think it applies to stones and boulders under any circumstances?—A. I think so, yes.

Q. Tell me where it applies?—A. There is bound to be a certain amount of material connecting those stones and boulders.

Q. It is not the material we are talking about; it is the stones and boulders?—A. I am explaining why I think that the plough test would apply to stones and boulders, and under these conditions.

Q. I thought the stones and boulders had to be measured and not ploughed?—A. If these stones and boulders are lying so thickly that it is practically impossible to measure them, and yet they cannot be ploughed—I took that position, that that was loose rock.

Q. Would you call a boulder loose rock?—A. Certainly.

Q. You would under the definition, but stones and boulders in a pile, with no earth in them at all, because they are so thick—A. I have not seen any case like that.

Q. Is it not the earth that is to be ploughed and not the stones and boulders? Is it not the most elementary reading of that section that boulders are not to be measured?—A. No, I do not see that.

Q. I take it that I am not stating unfairly that you think the plough test does, in some circumstances, apply to stones and boulders?—A. To stoney ground.

Q. I am not talking about stoney ground: I am speaking of stones and boulders?—A. I was trying to say I thought it applied to stoney ground.

Q. But you do not think it applies to stones and boulders?—A. Naturally, if the boulders were so scattered you could measure them, you would do so.

Q. Why can you not measure them?—A. There are too many of them.

Q. It would take you too long?—A. You could not do it.

Q. It would take you too long?—A. You would have to be stopping the work: you could not go on with the work: there would be nothing done in that cut.

Q. You mean it would take too long a time?—A. I do not mean it would take up too much of my time, but it would take up too much of the cut's time.

Q. It would stop the work—A. Yes.

Q. Do you not think that there is a difference between loose rock and stones and boulders?—A. Certainly.

Q. Spoken of in that sentence?—A. Well, it is pretty hard to say what the man who wrote that had in his head.

Q. In your head, is it not clear he meant——?—A. I am pretty well trying to go by that clause.

Q. How did you go by that clause? I will not ask you to construe it, but did you, in your work, make any distinction between the words "loose rock" in that paragraph, and "stones and boulders?"—A. No, I do not think I did.

Q. Then you did put in rock which was made up of stones smaller than a foot as loose rock?—A. Yes, where they came in conjunction with larger stones, so that the whole was impracticable to be moved if the plough test had been applied.

Q. On your whole territory is there any cemented gravel?—A. No, not that I know of, not what I would call real cemented gravel. The nearest approach to it was patches of very very hard material in a cut.

Q. Is there any indurated clay?—A. No, not that I know of.

Q. No clay in this country at all?—A. There may be patches; certainly no indurated clay on this work.

Q. All the material which we see in this right of way is either stone or sand, is it not?—A. Yes; there is gravel.

Q. Stone, sand or gravel?—A. I do not know of any clay.

By Mr. Gutelius:

Q. Referring to cut at 39.1, which we examined this morning said to contain 77 yards of solid rock and 820 of loose rock; in examining this cut with Messrs. Macfarlane and McGillivray, we all practically agreed that there was some common excavation?—A. Yes.

Q. I would ask you, with Mr. Aldred, to go into that classification again and, between you, give us a re-classification?—A. Yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN, JULY 13th, 1912.)

H. N. Bucke, sworn:

By Mr. Gutelius:

Q. How old are you?—A. Thirty-three.

Q. Where were you educated?—A. At London and Kingston, Royal Military College at Kingston.

Q. What experience have you had in construction work, shortly?—A. I was instrument man and resident engineer on the Cape Breton road for six and three months; at Sydney on waterworks business for seven months, and I have had about four years' experience on the Transcontinental.

Q. What position?—A. Construction.

Q. What positions did you fill on the Transcontinental?—A. I was resident engineer for a year and division engineer for three years.

Q. Prior to your becoming resident engineer, did you ever have a position where you interpreted specifications for grading?—A. Yes.

Q. What railway work?—A. On the Cape Breton road.

Q. What classifications did they use on the Cape Breton road?—A. Solid rock, loose rock and common excavation.

Q. Was it quite similar to the one you have been working on here?—A. Yes, it was.

Q. Just in a general way?—A. Yes, the same on the waterworks.

By the Chairman:

Q. What waterworks?—A. Pipe line and construction work.

By Mr. Gutelius:

Q. Where does your division begin?—A. At mile 40.

Q. Referring to the first cut at mile 40.1, in looking over that cut, it was pointed out that there was some common excavation in the cut, although none has appeared on the progress estimates. Do you remember the case?—A. Yes.

Q. And in discussing it, you thought there was a portion of common excavation there?—A. Yes, small pockets.

Q. And that you would rectify the classification in that respect; is that right? A. Yes.

Q. And similar cuts in that vicinity where the same character of material exists you would treat in the same way?—A. Yes.

Q. On the banks or on top of the cutting at 47.1 a quantity of wasted material was noticed, and you advised me that you were measuring that up, and deducting it as waste from the solid rock?—A. Yes.

Q. In the cut at mile 52.5, the record shows that of the 22,600 yards of solid rock that there was some 6,700 yards of overbreak; can you verify those figures?—A. Yes, I have it here.

Q. First, take the overbreak at 51.4; the overbreak in that cut amounted to how much?—A. 54 per cent. The inside quantities are 5918 and the inside 3189.

Q. Where was that material used?—A. It was used in fill 578 to 585.

Q. Was any of it taken west?—A. No, there was none taken west.

Q. So that none of that cut was wasted?—A. There was part of the west end taken, that yellow on the profile, it was mostly all hauled east; there was a small portion of it hauled west. There are the two colors in the cut east and west of that rock fill. It was practically all hauled east.

Q. Was there any waste in any of the cuttings mile 51 to mile 52, I mean dumps along the track of wasted material?—A. Yes, there is a lot of excess material there. The dumps are very wide. The dump at 578 to 585 is wide.

By the Chairman:

Q. You mean the grade was very wide?—A. Yes.

By Mr. Gutelius:

Q. Why was not that extra material used in the big fill at mile 52?—A. It was a very long haul. The work was started from both places at once, and it was a case of time getting Heathcote Lake filled. All that work was going on at once, and they worked at both ends.

Q. And to gain time you wasted; have you any idea of the material?—A. It was considered that that bank would go down considerably. I considered that the bank at 578 to 585 was soft and the lake would go down considerably.

Q. But this did not happen?—A. No.

Q. So that you had an excess of material there?—A. We had an excess of material there.

Q. That excess of material was wasted?—A. Was wasted, yes.

Q. And the same applied to the next three cuts?—A. No, the next three cuts were taken into the fill.

Q. You got those into the fill?—A. Yes; it was also a case of time as well as that bank I speak of.

Q. If the excavation for the cut at 588 had been delayed until the other four cuts were completed, you could have taken all of that material into the fill at mileage 52?—A. Yes.

Q. That, however, would have delayed the work a couple of weeks?—A. It would have delayed it more than that: it would have delayed it five or six months —well, say, four months.

Q. So that is the reason why you wasted that material instead of taking it down into the fill which was made up largely of rock borrow?—A. Yes.

Q. To waste that material was an unusual thing on the part of the division engineer. What authority did you have for doing it?—A. Authority from the district engineer.

Q. The late Mr. Poulin?—A. Yes.

Q. In the matter of location on your division, did you have any discretion in connection with location?—A. No, I arrived there after the work had been opened up.

Q. Turn to mile 52 and 53; it is suggested that a momentum grade be placed between these two points, whereby the cut at mile 53 would be reduced to practically nil. Suppose a one per cent grade had been introduced there instead of six-tenths, beginning on the fill below, would a considerable saving have been effected?—A. Yes, I think it would. I would have to figure it out. You mean by starting the grade here? (Indicating.)

Q. Yes?—A. Yes, there would have been a saving effected.

Q. But you were limited to the six-tenths, which was the approved profile?—A. Yes.

Q. Were momentum or velocity grades discussed at all, as far as you were concerned?—A. They were discussed some five years ago, or six years ago, in location. I wrote asking permission if I could use velocity grades, and it was discussed at Ottawa, and I got instructions not to use them.

By the Chairman:

Q. From whom?—A. Major Hodgins was district engineer at the time.

Q. Is this the district which his examination was about?—A. Yes, this district.

By Mr. Gutelius:

Q. You advised me in conversation to-day that where the overbreak was less than 25 per cent on the quantities inside slope stakes, that you passed it without any special attention, on account of the fact that the district engineer's office and the Grand Trunk Pacific engineer would be satisfied, so long as it did not exceed 25 per cent?—A. Yes.

Q. Was there any of this discussion in writing?—A. No.

Q. At mile 64.3 the cutting contains 10,600 yards of solid rock and about 1,200 yards of loose rock. Can you tell me how much overbreak there was in that cutting?—The station is about 325?—A. Station 317 to 328.

Q. Yes?—A. 22 per cent overbreak.

Q. There was 22 per cent overbreak paid for in your progress estimate as solid rock excavation?—A. Yes.

Q. Plus overhaul, if any?—A. Yes.

Q. I have a memorandum here, "It would seem that the overbreak should have been paid for at its equivalent in train fill, on account of its having been used in a fill where rock borrow was not necessary." Why did you not give them train fill for it?—A. They cannot take a rock cut to stand at the sections, and I was given to understand it was all right to allow a certain percentage, as I said, 25 per cent in a rock cutting.

Q. If that ruling had never been given to you, and you had been working on this specification, and your general knowledge as an engineer, would you have made any change in that method of classification?—A. Yes, I think I would.

Q. What would you have done with that overbreak?—A. I would have classified it as train fill, allowing ten and fifteen per cent, unless the specifications read that there was no overbreak.

Q. That is, you would have reduced what you allowed as legitimate overbreak to ten or fifteen per cent, and called the balance avoidable overbreak and allowed it as train fill at its equivalent yardage in train fill?—A. Yes.

Q. I was struck with the absence of loose rock in the matter of overbreak, remembering that the material in overbreak should be classified as it is found in the cutting after the shot is fired. Why don't we see some overbreak as loose rock in your estimates?—A. This question of overbreak was taken up with the Grand Trunk engineers and our own engineers, and decided on the way it was. It has been a debated question ever since the work was started here.

Q. That is the reason for your not having classified any of it as loose rock? —A. Yes, following the instructions.

Q. Aside from the instructions of these engineers, was there any material in those cuttings which you classified as solid rock which was broken up small enough to be loose rock?—A. Apart from that?

Q. Yes, apart from their discussion?—A. It was discussed generally; different cuts were gone over.

Q. If you had followed the specifications which require that material be classified as it is found in the cut after the shot, would you not have found some loose rock in the overbreak?—A. Certainly.

Q. Then, if you were hewing to the line, you would have been compelled to give some loose rock in this overbreak?—A. Yes.

Q. And the only reason you did not do it was because of the discussions and the instructions?—A. Yes.

Q. Where does your division terminate?—A. At mile 78.

By the Chairman:

Q. At mile 42.95 it struck me that there was too much solid rock allowed there. I asked you if you had measured it, and I think you told me that you had. Did you mean you had measured it yourself?—A. It had been measured by the boulder measurer.

Q. Explain what you mean by that?—A. There are boulder measurers put on the work under each resident engineer, to measure this rock.

Q. And they made the measurement?—A. Yes.

Q. And returned it to you?—A. They returned it to the resident engineer, but I checked it up and was responsible for such rock as had gone in as such.

Q. Right there, there are two ditches on the north side?—A. That is at station 95?

Q. I do not know the station, but it is mileage 42.95. There are two excavations which look like ditches; one is a ditch and the other is a borrow?—A. Yes.

Q. Why did you not use the waste from the ditch instead of making an extra borrow there?—A. I did not consider that it was good practice to make muskeg dumps.

Q. But both the ditch and the borrow are muskeg?—A. But the borrow was put in later, just before the track was laid, to enable the track to get over it. There was a small quantity put in over the stumps.

Q. Did you not use muskeg at all?—A. There was muskeg used in one place in the division, but it was before my time.

Q. Since you came you have excavated muskeg, and not used it?—A. Yes.

Q. At mileage 44.4 there is a ditch. What did you allow that ditch at? There is a big stone in the middle of it?—A. That ditch is under construction now.

Q. It has not been estimated yet; there was a big stone in the middle of it? A. It is a ditch with a stone sticking up?

Q. Yes.—A. That ditch is under construction.

Q. At 45.9 there is a lot of overbreak, and you say it was equalized in the return; what did you mean by that?—A. I do not understand you.

Q. I made a note that you said to Mr. Devenish, "It is equalized in the return". What did you do at 45.0 there?—A. These cuts are taken out and put both ways in the muskeg, to make dumps.

Q. Explain that?—A. There was 2,000 cubic yards taken from the overbreak and returned as 3,000 yards of train fill.

By Mr. Gutelius:

Q. For the reason that the overbreak expands and is equal to that amount of train fill?—A. Yes.

By the Chairman:

Q. At 46.1 mileage you returned this all as solid, and there is 47 per cent overbreak?—A. It was considered to be all necessary in the fills; there was soft muskeg fills on each side of the cut.

Q. I understand that, under those conditions, you should measure it as it lies in the cut, after the shooting?—A. It was considered in this case that it was the best material to make those fills, and looked at as rock borrow.

Q. Do you consider that it was necessary to use rock in that place?—A. Yes, I think that is the best material to make those fills with.

Q. It did not all go into that fill to the east, did it?—A. No.

Q. Did you not waste some of it?—A. No, it was all put in the bank.

Q. Should it be called solid where it was put? Should it not be measured as it fell into the cut after the shot?—A. There were soft muskeg fills on each side of it where this rock went in, and I consider rock would make a much better fill than muskeg or anything else.

Q. Am I correct in my understanding that, following your instructions, that overbreak used in any fill was measured as solid rock?—A. Not in all cases; there are some cases where it has been deducted.

Q. No, I say, "used in any fill"; is it measured as solid rock?—A. It is measured as solid rock in a great many fills.

Q. Irrespective of whether it was necessary to use rock in that fill?—A. No. The fill was always considered, whether it was necessary to fill it with rock, or whether it would be filled with other material.

Q. If you used in a fill where it was not necessary to use rock, how did you measure it?—A. It was measured as solid rock and in some cases train fill—deducted and returned as train fill.

Q. It is shown on the return whether it was measured as train fill or measured as solid rock?—A. Yes.

Q. Do you say that in some cases where it was not necessary to use rock, you measured it as solid rock?—A. Yes.

Q. Now at 47.1, I understood you to say that where there was 32,700 solid rock you treat it as a rock borrow pit because you had instructions before the rock was taken out, that instructions received from the district office advised the contractor that it would be so treated?—A. Yes, the district office.

Q. Have you ever had any experience on other railways where such a practice was followed?—A. No, I have not had any experience, but I know it to be the case.

Q. But it is only, is it not, the practice on other railways to allow such rock as solid borrow where it is arranged with the contractor, before he takes the material out?—A. I believe it to be the case.

Q. But you personally have not had any actual experience of that?—A. Not off this road, no.

Q. Was there any other place in your division where that was done?—A. Where there was rock borrow used, do you mean?

Q. Yes?—A. Yes.

Q. Rock borrow taken out of the cut?—A. Yes; the lake fill at 40.9, there was rock borrow; there was a considerable quantity borrowed, besides what came from the cut, and also at Heathcote Lake.

Q. At mileage 47.9 the overbreak is all returned as solid rock. Was it used where train fill would do? Station 402 to 408?—A. Rock borrow was the best thing to fill it with.

Q. Would not train fill have done?—A. Yes.

Q. Rock borrow is always best for fill?—A. Yes.

Q. It is better than anything?—A. Yes.

Q. But it is not always necessary to use rock borrow where it is expensive?—A. No.

Q. Is there not a large amount of waste dumped on top of the bank there?—A. I do not remember.

Q. Is there a large dump of rock near by there?—A. Yes, it is cut 8; it is at 48.7.

Q. There is a large dump there; was there any deduction made for that?—A. Yes. There is the 400 cubic yards.

Q. Did you allow him anything for that 400 yards?—A. No, that was deducted.

Q. At 50.2 mileage; just before this cut there is a very wide fill. You agreed with me that it was too wide. Did you make any deduction for that waste there?—A. No.

Q. Why not?—A. It was used for lake fill in this place. It was thought that it would go down some, and that the width of fill would receive the train fill and ballast. It did go down a little.

Q. Did it go down since?—A. No, it has not gone down; it went down a little on construction, but it has not gone down since.

Q. 51.1 is all returned as solid; this was put into the waste fill and is very wide. Are you not over generous there in your allowances?—A. That cut was hauled both ways.

Q. You have 3,100 hauled the other way; but is it not too much in there?—A. Yes, it is a very wide bank; that is another case of where it was expected to go down considerably, another lake fill.

By Mr. Gutelius:

Q. Was this extra wide filling at the points just mentioned made with your knowledge and consent?—A. Not altogether, no.

Q. The contractors made the fill and you thought possibly it would settle and let it go?—A. No, I did not. It was taken up with the inspecting engineer going there, and he said it would be advisable to put in wide banks at these places.

Q. You had them made wide under instructions from superior officers?—A. Yes.

Q. Who were they?—A. Mr. Poulin was district engineer.

Q. And who was the inspecting engineer to whom you refer?—A. Mr. Balkam, and the Grand Trunk engineers.

Q. Who were they?—A. Mr. Heman and Mr. Featherstonehaugh. Mr. Heman was at one time and Mr. Featherstonehaugh replaced him.

Q. You are quite sure the Grand Trunk engineers and inspecting engineer asked you to make those banks as wide as that?—A. Yes, it was agreed upon to do that.

By the Chairman:

Q. At 52.50, 6,700 yards all returned; is this not very wide too?—A. Yes.

Q. More than appears to be necessary?—A. Yes. The material was wasted from this cut in order to get it out in time.

Q. Did you say instructions were given by the Grand Trunk engineers?—A. They were not instructions from the Grand Trunk engineer; it was instructions from the district engineer which were agreed upon by the Grand Trunk engineer; they were all going over the line together.

Q. You did not receive instructions direct from him, although you know he agreed with the district engineer?—A. Yes, I know he was agreeable. The waste at this place you speak of is mostly clay. It is considered of no use to fill the Heathcote Lake fill.

Q. At 65.9 there is about 43 per cent of this in as solid, is there not?—A. There is 5,677 yards of solid and 458 yards of loose.

Q. It is all allowed as solid, is it not?—A. No, there is 458 yards of loose.

Q. But all the overbreak is allowed as solid, is it not?—A. Yes.

Q. Why did you do that?—A. It was needed to make the fill.

Q. The fill need not necessarily be rock, need it?—A. No, not necessarily.

Q. It was just for the same reasons that you gave before?—A. Yes.

Q. You have a place where you have, at 67.50, widened the cut for drainage purposes?—A. Yes.

Q. How wide did you make the cut?—A. An extra two feet, if I remember, were taken off for drainage.

Q. On both sides?—A. No, on the south side. I could tell you better with the cross-sections.

Q. There is a ditch on both sides, though?—A. Yes.

Q. You have put the track in the centre?—A. Yes.

Q. If you did not need to widen it on both sides, why did you widen it on either?—A. It is a very wet cut; from station 492 there was the drainage came in, and it was widened to look after this drainage.

Q. Why did you not turn the drain and have it only on one side?—A. Because the drainage came in in the middle of the cut at station 492, and it was to enable us to carry this water, this outside drainage, off, that the ditch was put in.

Q. Why were there two ditches put in the cut?—A. It was necessary to drain the cut.

Q. Could you not have crossed over and drained in?—A. It would not drain the cut as well.

Q. You say it was coming in on both sides?—A. No, I say that on one side the drainage was coming in at station 492. This was extra drainage, apart from the cut drainage.

Q. You say in any event you would put the drainage on both sides?—A. Yes, according to specifications.

Q. Then you widened it and made the ditch bigger?—A. Made a larger ditch on the south side to look after outside drainage; it was a small brook coming in. It was a long cut, and from the centre of the cut down it was widened for drainage.

Q. You only widened it about two feet?—A. About two feet.

Q. How much is the overbreak there then?—A. The overbreak is not worked out. There is 14,450 yards inside slope stakes, and 6,286 outside of slope stakes.

Q. Is there any unnecessary overbreak in that cut?—A. Very little.

Q. Did you deduct any?—A. No, very little, if any.

Q. At mileage 72 you say you widened it for drainage; my note is there is too much loose here, and there is a great amount wasted on the side dumps. Why is it widened on both sides? In the first place, how much loose is there—A. 27,442 yards of solid and 11,280 of loose and 11,410 of common.

Q. I thought there was too much loose there and it should have been common. Did you cross-section that?—A. Yes, the resident engineer did.

Q. Were you with him?—A. No, I was not with him when he cross-sectioned it.

Q. How did you arrive at your figures?—A. By taking notes and classification. I also checked the cross-sections up afterwards.

Q. The resident engineer did it, and you checked up his cross-section?—A. Yes.

Q. That is the ordinary practice?—A. Yes.

Q. But he did cross-section it?—A. Yes.

Q. There is a great amount wasted on side dumps?—A. There is a lot of material wasted there.

Q. Did you make any deductions there?—A. No. There is both common, loose and solid wasted there.

Q. Was there any train haul in that vicinity at all?—A. No.

Q. You had no use for it then, had you?—A. No.

Q. Did you widen it on both sides, or how much?—A. My remembrance is that it is just widened on the south side.

Q. How much have you widened it?—A. We put a ditch in there three or four feet at the bottom.

Q. And how much is the excavation there outside the stakes?—A. I could not tell you that.

Q. You have not a memorandum?—A. No, not here. I could get it for you off the cross-sections.

Q. I have got down here—I may be wrong about it—within two miles I have got train haul; is that too far away?—A. Yes.

Q. Too far to haul that stuff?—A. Yes.

Q. What would the charge be for train haul there?—A. Well, your material from the cut would be a cent a yard per 100 feet over 500 feet.

Q. So that it would cost you about 80 cents to haul it down there; it would cost you nearly a dollar?—A. It would cost $1.01.

Q. But it would not cost you that if it was taken down there for train haul?—A. It could not be used as train haul, because they could not work the shovel in that cut.

Q. That material was wasted. In many cases you carried similar material out by train and put it into fills, did you not?—A. No.

Q. You took out rock and put it into fill?—A. No, not by train.

Q. How was it taken out?—A. Horses, cars and stone boat.

Q. You did not put any of that on the train?—A. No.

Q. It is carried out on the donkey cars?—A. Yes, and light rails.

Q. 76.6; what did you do there?—A. In the fill?

Q. No, there is a rock borrow; station 980 my note is that you said there was 10,000 yards required. I queried that. I do not know whether I am correct in that or not?—A. I do not remember saying it, but rock was required to fill the lake fill east of that point.

Q. How much rock borrow did you take out there?—A. About 10,000 yards; 9,700, to be exact.

Q. There is a lot of that piled up on the hill on the south side wasted there that is the place?—A. That is to be measured.

Q. You did not deduct that?—A. No, it was not deducted.

Q. Mileage 77 to 77.05; I have a note, great amount of waste rock piled up both sides. Perhaps this is what Mr. Gutelius asked you to measure. I understood from you that you were instructed to waste this, in order to save time?—A. Yes. It was done to expedite the work, to save time.

Q. You were instructed to waste this?—A. Yes.

Q. Otherwise, it could have been used in that fill at 78?—A. Yes, with a long haul.

Q. It would not have been very long?—A. I am not sure how far they can make a contract to haul material.

Q. Anybody can make that up from the profile?—A. They could have filled it with a long haul.

Q. Whether or not it would have paid you are not prepared to say at the moment?—A. No.

NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION.

GEORGE LYNCH-STAUNTON, K.C., *Chairman.*
F. P. GUTELIUS, C.E., *Commissioner.*

Parent, August 15th, 1913.

(Evidence taken on train.)

ALAN TIMBRELL, sworn:

By the Chairman:

Q. What is your age?—A. I am thirty-five.

Q. You are a practising civil engineer?—A. Yes.

Q. Educated where?—A. At the Blundell School, in England.

Q. What is your position now?—A. I am division engineer on Division 11.

Q. You have been practising your profession for how many years?—A. Well, I was surveying in the Old Country, and mining engineer.

Q. How long have you been practising your profession as a civil engineer, in connection with railway work?—A. Since I have been on the Transcontinental.

Q. This is your first?—A. Yes.

Q. Then on the Transcontinental you acquired all your experience in classification?—A. Yes.

Q. When were you first engaged on the N.T.R.?—A. It was March or April, 1905, I am not quite sure.

Q. And in what capacity?—A. Topographer.

Q. And you continued as topographer for how long?—A. Up to November, I think. That was the month Mr. Grant was made assistant engineer.

Q. You can say for several months?—A. Yes.

Q. Then you were advanced, were you?—A. I was made draftsman.

Q. And from that?—A. I was instrument man with another party.

Q. That was in location?—A. Location on survey.

Q. After that?—A. Then I was instrument man on Residency 26 for about three months.

Q. In what district?—A. The same district, La Tuque.

Q. So that you have been continuously engaged, in one capacity or another, upon the part of the line between Quebec and Parent?—A. No, beyond Parent.

Q. Quebec and Lake Nipigon?—A. Oh, yes, that covers it, the north section of the district.

Q. After you were instrument man, what did you become?—A. Resident engineer on 28.

Q. On Residency 28, in what district?—A. District B.

Q. Whose contract?—A. Hogan and Macdonell, I guess it was.

Q. Contract number what?—A. 10, I think it is.

Q. With headquarters where?—A. At Ludgernoel. That is mile 142 or 141.

Q. How large was your residency?—A. About nine miles; it may have been nine and a quarter, or something around there.

Q. When were you on that residency? Over what period?—A. It was either April or May, 1907, till about the same month in 1908.

Q. And after that?—A. Then I was moved up to Residency 31 in the same district.

Q. And after that?—A. Then I was moved up to Residency 31 in the same district; it is contract 11.

Q. Whose contract was that?—A. Grand Trunk Pacific.

Q. Did they do the work themselves?—A. No, no, Macdonell & O'Brien were doing it.

Q. At what mileage was your headquarters?—A. 170.

Q. You continued there for how long?—A. I was there for a year—oh, over a year: from May, 1908, till Christmas, 1909.

Q. You were there until when?—A. It was the Christmas of that year, 1909, I think.

Q. After that what did you do?—A. I moved up to this residency, Residency 39.

Q. On what contract?—A. I think it is 12.

Q. Have you, then, been resident engineer on these three residencies during all the time you have spoken of?—A. I have.

Q. And, as such, your duties were to do what?—A. To see that the work was done properly, classifying under the division engineer's orders—not his orders exactly.

Q. His supervision?—A. Yes.

Q. Did you receive any copy of the contractor's contract for the particular residency in which you were from time to time?—A. The general specifications.

Q. No, the contract?—A. That includes the contract.

Q. You did receive the book which included the contract and general specifications?—A. Exactly.

Q. Did you make yourself familiar with them?—A. I did.

Q. Before you commenced your work on your Residency 28, did you read the specification for classification?—A. Yes, sir.

Q. Of excavated material?—A. Yes.

Q. And did you consider that you understood it?—A. Yes.—well, it took me some little time to understand it.

Q. Did you consider that you mastered it then to your own satisfaction?—A. We had some trouble with the meaning of the terms when we first started—the meaning of the terms in the specification for solid rock.

Q. In the first place, the specification for solid rock excavation is paragraph No. 34, and is as follows:—"Solid rock excavation will include all rock found in ledges or masses or more than one cubic yard, which in the judgment of the engineer, may be best removed by blasting". Had you any difficulty in understanding the meaning of that?—A. There was some slight difficulty in the matter of the masses.

Q. You had difficulty in understanding what the meaning of "all rock found in masses or more than one cubic yard" was?—A. Certainly.

Q. You mean certainly you had?—A. Yes.

Q. What was the difficulty you found there?—A. Well, when we first started in—

Q. I am speaking of reading them? What did you find difficult about that?—A. What "masses of rock" meant, whether it was a mass or rock as rock, or whether it was that other material with that rock made a mass.

Q. What is there to make you conclude it means anything more than rock in masses?—A. It says rock excavation.

Q. Were you told you ought to read in the caption to that, "solid rock excavation"?—A. Oh, no, we were not told that we should.

Q. Why should you read it?—A. It seems plain in there; it says "rock excavation".

Q. It does not say anything about rock excavation?—A. On the heading it calls it "solid rock excavation".

Q. That would not mislead you; that meant the excavation of solid rock, did it not?—A. It might mean that, but then it says—

Q. Take one thing at a time. I do not want to catch you, but I want you to explain the meaning, and you say the heading gave you some trouble. The heading has the three words, "Solid rock excavation". To your mind, I should think, as to any other person's mind, not reading any further, that meant the excavation of solid rock?—A. Yes.

Q. And nothing more?—A. Nothing more.

Q. So that, so far, it was perfectly clear.—A. Yes.

Q. That would not confuse any engineer, I should think, would it?—A. No.

Q. Then we come to the words that you mentioned first, "All rock found in masses"—I am leaving out, for the moment, ledges—"All rock found in masses"; did you think that meant something else found in masses than rock? If you did, say so?—A. I certainly did.

Q. You thought it meant what?—A. I thought it meant rocks—I do not know how to explain it very well.

Q. Explain what impression it left on your mind?—A. Well, it mentions rock in ledges and it mentions rock in boulders.

Q. No, excuse me, it does not mention rock in boulders?—A. No; it is pretty hard to explain what it meant.

Q. You had had no experience before in classification?—A. No.

Q. And you say that that expression left a confused impression on your mind? A. Yes.

Q. And what did you think you should classify under it?—A. I primarily thought that it meant just solid rock; I primarily thought that.

Q. Did any outside influence—I do not mean improper influence—or argument lead you to think it meant anything else?—A. We discussed it with the division engineer, and, to the best of my recollection—I may be mistaken on that—I think he said that it meant masses of rock. I do not know that it was cemented together, but masses of rock. That is the best of my recollection. I would not be sure of that.

Q. Who was that gentleman?—A. That was Mr. Bourgois.

Q. Benjamin Bourgois?—A. Yes.

Q. He did not tell you it meant anything more than rock, so far as you have informed me at present?—A. It meant masses of boulders; that is what he instructed me, as far as I recollect; that is, more than one rock.

Q. Is that all the information he gave you?—A. It is so long ago that I really could not recollect what he did say.

Q. That is the impression you have, but you would not like to say definitely?—A. No.

Q. Then before you got any other instructions, or any other enlightenment, as to the meaning of this phrase, did you commence to classify it?—A. Yes, I believe so.

Q. Will you be kind enough to tell me how you commenced classifying under the heading, "Solid rock excavation"?—A. Well, we measured all the—

Q. Say what you did?—A. Well, I did. I measured the ledge rock and the big boulders—no, we did not measure the big boulders on that St. Maurice side hill cuts—we could not do it.

Q. Tell me what you did, and I will ask the reasons afterwards?—A. We measured the ledge rock, and we estimated, as far as we could, stone by stone, the amount of boulders that were on those St. Maurice side hill cuts.

Q. When you say you estimated the boulders, I understand from that that you counted the boulders?—A. As near as we could get them, roughly.

Q. And among those boulders did you count any boulders which, in your judgment, should not pass for a cubic yard or more?—A. We took no boulders that were, as far as I could judge, less than a cubic yard, or thereabouts.

Q. Less than about a cubic yard?—A. Yes, thereabouts.

Q. So that you professed to only include in those boulders such as you thought would fairly come within the description of a boulder which measured one cubic yard—fairly come within that?—A. Yes.

Q. Did you keep a record of those boulders?—A. I think there was a record kept.

Q. But did you keep a record of them?—A. I had a notebook.

Q. In which you——A. In which I kept a note of different cuts.

Q. Was that kept fairly accurately?—A. Pretty well, I think, to the best of my recollection.

Q. You professed to keep a record, at all events, did you?—A. To aid me in getting out the quantities in the cut; I had to do it.

Q. It was your duty to do it, was it not?—A. Yes.

Q. And you professed to perform your duty fairly carefully?—A. As well as we could do it.

Q. As well as you could do it would be to put them, every one, down, but fairly carefully would mean that you got them nearly all down?—A. Well, that is it.

Q. Did you follow that practice in each of your three residencies from the time you first entered on your duties on your first residency up to the present time?—A. As to measuring of boulders?

Q. And keeping a record of the boulders we have been talking about?—A. Yes, sir.

Q. Are those records accessible to you now?—A. I do not think they are; I do not know where they are.

Q. Why are they not accessible?—A. Because I left any records I had behind on the different residencies, and where they are now I cannot say.

Q. They should be in the residencies?—A. They may be, I could not say.

Q. Did you give a true report of the number of those boulders or of the quantity of those boulders?—A. You mean, did I exaggerate?

Q. Did you give a true report?—A. Yes, certainly, as far as I could.

Q. What became of those reports? What did you do with them?—A. You mean, to whom did I report?

Q. Yes?—A. Oh, they would be in the estimates, in the forms.

Q. You wrote them down on the form supplied to you?—A. Yes.

Q. And forwarded those forms to whom?—A. To Quebec.

Q. To Mr. Doucet?—A. To the division engineer; I was resident engineer.

Q. Did you keep duplicates of your estimates?—A. Certainly.

Q. Have you them now?—A. No, sir.

Q. What has become of them?—A. They are left along with the records of the residencies.

Q. And, in all probability, they are there now?—A. As far as I know.

Q. So that there is in existence a record showing the boulder measurement of the boulders of a cubic yard or more, unless your reports have been lost or destroyed?—A. Unless they have been lost or destroyed.

Q. Will those records show, separately from all other material, the quantities in the boulders we are speaking of?—A. I think they will, as far as Residency 31 and 39 are concerned; I would not say anything about 28.

Q. You are uncertain as to 28?—A. I am.

Q. Why?—A. Because it is so far back that I do not recollect.

Q. You cannot charge your memory with it? Is that it?—A. That is it.

Q. Then I take it you have classified as solid rock excavation all rock found in ledges?—A. Yes.

Q. Then you have classified as solid rock excavation all boulders of a cubic yard or more?—A. Yes.

Q. And, thirdly, you have classified some other rock material under the head of masses of more than one cubic yard?—A. Yes, sir.

Q. Have you pursued the same course in your three residencies in the classification of the last-mentioned material?—A. Yes.

Q. I notice that in this district the words "massed material" is used?—A. Yes.

Q. Did you always, in your classification, appropriate that term "massed material"?—A. I could not say when it first came in. As far as the last two residencies are concerned—31 and 39—yes, but I do not remember when it first came up.

Q. What did you classify under "massed material"?—A. We classified all assembled rock. That was, all rock in boulders, in masses, that could be best removed by blasting.

Q. You exclude, do you not, from massed material, or do you exclude from massed material, boulders of a yard or more?—A. We did not exclude boulders of a yard or more that are in the mass; they are measured in the mass, but if there are boulders in loose rock adjacent, we exclude that from the massed material.

Q. I have found out from you now that you kept a record of the boulders of a yard or more, and I understand that to mean that you included in those, those in the cross-section and above the cross-section?—A. Yes.

Q. Under massed material, though, you placed the boulders which were of a yard or more?—A. Yes, sir.

Q. In a sub-heading?—A. I do not remember about the first one.

Q. Do you happen to have here one of your estimates?—A. I have not.

Q. Under the heading of massed material you would first put the quantity of boulders of a yard or over?—A. Yes.

Q. And if, in that same estimate, you wished to include other material, such as fragments of rock and small boulders, which were in your judgment, cemented together, you would also include those?—A. Yes.

By Mr. Gutelius:

Q. Have you not a record, such as we saw to-day, which actually divides up this cutting in this manner?—A. Yes.

Q. Can you produce one of those now?—A. I have one in my pocket. To make myself clear, I produce my classification book, cross-section book 10 by 10, District B., Division number 11, Residency number 44, in which the following entry occurs: "March L. 350, S.G. 70, B. 30, C. 70, total 520, which means ledge rock 350, sub grade 70, boulders 30, classified assembled rock 70.

By the Chairman:

Q. What you have placed under C, assembled rock, 70, includes what?—A. Includes small fragments of rock, and any cemented material that is not included otherwise.

Q. It includes small fragments of rock in cemented material?—A. Yes.

Q. Does it include small boulders in cemented material?—A. Certainly.

Q. And is this characteristic of all the entries under solid rock excavation throughout your books?—A. We did not have them down on 28; we had them on 31 and 39.

Q. That is a sample entry in the book?—A. Yes, that is the resident engineer's book.

Q. In that 70 is included cemented material?—A. Yes.

Q. What do you call cemented material?—A. Any material that is cemented together, with more than 50 per cent of stone in it.

Q. What do you mean by cemented material?—A. Well, the stone is cemented together.

Q. You, as an engineer, should know better than that; a stone is a stone, and cemented material is something else?—A. You mean cementing material.

Q. Yes, that is better?—A. Well, it may be clay or lime, or any material that is cemented, any matrix or sticky substance.

Q. Any matrix that will hold the rocks together?—A. Yes.

Q. You said just now that when you included this body of material made up of fragments of rocks, small boulders and the matrix or cementing material, that you only did so when there was at least 50 per cent of rock of either description in the mass; is that correct?—A. In most cases, yes.

Q. Then there were some cases in which you had a smaller percentage of rock in the mass?—A. Some special cases that were not really rock, and yet was removed by blasting, and was similar to rock.

Q. It was not rock?—A. It was not exactly rock; you could not call it rock from a geological point of view.

Q. Then do I understand you that you did include under solid rock excavation a mass of material in which there was no rock?—A. No rock as you may call a stone.

Q. Can you give me any idea of what per cent that would be over your whole classification?—A. I cannot.

Q. Would it be large?—A. It would not be large. There were very few cases over the whole thing.

Q. Can you recall one?—A. There is one down at—I cannot tell the stations.

Q. State the locality?—A. Somewhere down near Windigo; there is one on Residency 31. If I had the profile I could show you pretty well. (Profile shown witness.) To the best of my recollection, that is a side hill cut, and it is right there at station 1034, mileage 169.5.

Q. Any other places?—A. There were other places, but I do not remember them.

Q. Then at mile 169.5 is the S.R.M. 6962, the material you are speaking of?—A. Not the whole of it; it is included in that.

Q. What else was in it?—A. There must have been boulders in it; I am speaking from memory.

Q. You are speaking of a place where there were no stones in it?—A. Oh, that is a big cut.

Q. There is the mass, and you told me that you put in as solid rock excavation a mass without any rock in it?—A. Certainly.

Q. Now, what was it?—A. In that particular mass?

Q. Yes?—A. It is hard stuff to describe.

Q. It was a bluish material?—A. It is like a blue sandstone, to the best of my recollection.

Q. Is it a sandstone or is it a clay?—A. No, I should not call it clay.

Q. Do you know what it is?—A. I do not; I know how it was classified.

Q. You told me how it was classified, but you do not know what it is?—A. No.

Q. Did you include under the massed material any material in which there were stones, but which were less than 50 per cent of the whole?—A. Not to the best of my recollection.

Q. You did not intend to do so, if you did?—A. No.

By Mr. Gutelius:

Q. Are you sure that in this cutting you have just described some of these cubic yards which you classed as assembled or massed material did not have stones in them?—A. Some of them had stones in them, certainly, but not—

Q. You classified them because of the hardness of this clay, sand-like material, rather than the stones?—A. Yes.

By the Chairman:

Q. What was the average percentage of rock, in your judgment, in the massed material, over your whole experience as a classifier?—A. I could not answer that; I could not tell you that at all.

Q. What was the average experience in the last month that you have been supervising classification, roughly?—A. I could not say.

Q. Would you say it was as much as between fifty and sixty per cent of rock in the massed material?—A. Oh, no. You mean that half what they got out was massed material? No.

Q. Do you know what I am asking?—A. You are asking whether half of the solid rock returned was——

Q. No. I asked you to direct your mind to your returns of massed material, and I asked you if you would say that the contents of stone in that massed material amounted to as much as from 50 to 60 per cent?—A. I should say not.

Mr. Gutelius:

Q. That is the massed stuff that you classified as massed material, solid rock price?—A. Yes.

Q. Was the quantity of stone in those masses as much as 50 per cent of the mass?—A. Yes, there would be about that.

By the Chairman:

Q. I want you to tell me, keeping all the time now to solid rock excavation, whether you had any written instructions during your tenure of the office of resident engineer in any of these residencies, as to how you were to classify solid rock excavation?—A. We had this blue print.

Q. This is dated January 10th, 1908, signed by Hugh D. Lumsden, chief engineer; is that right?—A. Yes, sir.

Q. Did you get a letter along with it?—A. I do not remember anything about that. I remember the blue print. I do not remember the letter.

Q. Surely you kept your instructions, did you not, when you were continuously at this work?—A. I could not tell you.

Q. You got the blue print, and I suppose you kept it, did you not?—A. Yes.

Q. You got a letter of instructions with it?—A. I do not know anything about the letter of instruction at all; I do not remember it.

Q. Did you get any verbal instructions from Mr. Doucet?—A. Yes, over and over again.

Q. About the time you got the blue print, did you?—A. I do not know when I got that document. I do not remember when it was.

Q. After you received this blue print did you change your method of classification?—A. No.

Q. So that the blue print had no influence upon you, or did not convey to your mind any other information than that which you already had as to classification?—A. No.

Q. You have described to me, then, the way you classified this material from the beginning of your work up to date?—A. Yes.

Q. And if I asked you to-morrow to make me up a record showing the amount of massed material which you have classified, if the records are get-at-able you could do so?—A. Yes.

Q. And if I asked you to make me up a record of the boulders you had classified, and the records are obtainable, you could do so?—A. Yes.

Q. Showing, under each of these heads, the quantities separate one from the other?—A. Yes, sir.

Q. And you think that that record would show, under the massed material, that the cementing material would amount to about 50 per cent of the massed material?—A. Yes.

Q. Under loose rock, you were told in the specification to classify all large stones and boulders measuring more than one cubic foot and less than one cubic yard; that is correct, is it not?—A. Yes.

Q. And I understand from you that you did not classify such stones and boulders, where they were found cemented together in masses of more than one cubic yard——A. Yes, sir.

Q. Then did you classify all such stones and boulders, where they were cemented together in masses of less than one cubic yard as loose rock?—A. Yes.

Q. Then did you classify as loose rock all large stones and boulders which actually measured more than a cubic foot, which you thought were too small to be put in as one cubic yard?—A. I did.

Q. I want you to be very careful about this. Where you found such stones and boulders as I have described to you in a sand cutting, that clearly were in loose sand, did you really and truly classify those as loose rock in all cases?—A. To the best of my recollection, I classified them as loose rock.

Q. You would not classify any such stones, would you, as solid rock in any of these loose sand hills that we have been going through to-day?—A. Any such stones, no.

Q. And if you did, it was an error?—A. Yes.

Q. And should be rectified?—A. Yes.

Q. Because it was unintentional on your part?—A. Yes.

Q. Did you classify as loose rock what is described in 35, "All loose rock, whether in situ or otherwise, that may be removed by hand, pick or bar"?—A. Yes.

Q. Will you describe the rock that came under that head, if you can? I take it that, for instance, if you came under that head, you would classify the small fragments you found at the foot of a mountain, or at the foot of a rock hill, which had, in the course of ages or years, been broken off and tumbled down and gathered in a mass, or gathered in heaps at the foot of a hill?—A. Yes, loose rocks.

Q. That is what you understand by that?—A. Yes.

Q. Then you would put those piles of rock, if there were any, under loose rock?—A. Under loose rock.

Q. Now, then, did you find any cemented gravel?—A. Yes, sir.

Q. Where is that?—A. I cannot recall just now. It is in lots of different cuts along the line. I do not know of any cut that is absolutely all cemented gravel. It occurs in chunks and pieces and seams in cuts.

Q. But there were quantities of it?—A. Yes.

Q. And you did classify that cemented gravel as loose rock?—A. Yes.

Q. Or intended to do so?—A. Yes.

Q. Did you find any indurated clay?—A. I think there must have been some, but I do not recall any to mind just now.

Q. Do you know what indurated clay is?—A. Yes, sir.

Q. What is it?—A. It is very hard clay.

Q. It is what it says it is, hard clay?—A. Yes.

Q. Did you have any other materials that you classified as loose rock?—A. Yes. We had a sort of iron stone, such as we saw this afternoon.

Q. Do not tell us what we saw?—A. I cannot describe it otherwise very well.

Q. It is a brownish hard material?—A. Yes, impregnated with iron.

By Mr. Gutelius:

Q. Sand impregnated with iron?—A. Yes.

By the Chairman:

Q. You classify that as loose rock?—A. Yes.

Q. Is that the only other material that you recall?—A. No.

Q. There was no other?—A. No, I do not think so.

Q. When you were classifying cemented gravel and indurated clay and other materials as loose rock, you did so, I imagine, on account of their hardness?—A. Yes.

Q. And how hard had they to be before you put them under that heading?—A. Well, they would require picking. They would not be free shovelling; that is, a man could not go in with a shovel and shovel it out, or knock it out with a shovel. He would have to take a pick or a bar.

Q. Would you put under loose rock material which a man would pick out, although, perhaps, one pick man would keep half a dozen shovellers going?—A. Oh, no.

Q. Did you think about the plough test at all?—A. There were very few places you could put a plough.

Q. Did you think about it?—A. Yes, always.

Q. You are swearing to it; did you make up your mind, or did you not, that if there were, for instance, half an acre of that material, it could not be ploughed?—A. Yes.

Q. Or did you say to yourself, "Well, I will put that in as loose rock, because, by reason of the boulders scattered among it, a man cannot go in with a team and plough it, although I know he could plough it if the boulders were out"?—A. That would certainly influence it.

Q. Then you were not guided by the hardness in all cases?—A. Whether it would be practicable to plough it.

Q. Whether the material itself could be practically ploughed, or whether——A. The material itself.

Q. We will imagine a case. You have before you half a mile of right-of-way, and we will imagine that you could go along, like they do with a magnet in iron, and take out all the boulders, just lift them right out and leave the material unbroken and unshaken by that process?—A. Yes.

Q. And if, the boulders being lifted out, and the material being left unchanged by the process, you were certain a man with six horses could plough that material, would you put that in as common excavation, or as loose rock?—A. The material that was left, after the boulders were lifted out?

Q. Yes, and, mind you, the material is unshaken and unmoved by taking out the boulders, and it is just as hard as it was before, if you could plough it, would you put it in as loose rock?—A. No, I do not think so.

Q. What should it go in as?—A. It should go in as common excavation, because you could plough it.

Q. And certainly, if you are giving a correct answer to that, if you had such material that, by occasional blasting, you could shake it up, so that it could be ploughed, you would have classified it as common excavation?—A. Though you occasionally blast it?

Q. Yes?—A. No.

Q. Does it not mean that you shall classify as loose rock all cemented gravel which cannot be ploughed without continuous blasting, but you shall not classify as loose rock cemented gravel which requires, in odd places, to be blasted before the whole mass can be ploughed? Do you agree with that?—A. Yes.

Q. Your attention has been drawn to a case where that actually happened just now?—A. Yes.

Q. And of course that applies to indurated clay and to any other material?—A. That can be ploughed, yes.

Q. All other material than those I have been discussing with you is put in as common?—A. Yes.

By Mr. Gutelius:

Q. Did you ever see a railroad contract and specification before you saw that one?—A. No sir.

Q. How did you get your first information as to how to classify?—A. I think I got it from Mr. Bourgois, but I really cannot remember.

Q. Was there anyone else in the party?—A. Mr. Grant came up when I was there two or three times, and I asked him and he showed me. Mr. Grant was then assistant district engineer.

Q. He taught you?—A. Yes.

Q. Did you have any experienced man in your own party on the Residency?—A. No.

Q. You knew more about it than anyone else in the Residency?—A. Yes, I suppose so.

Q. How did you get your job here in the first place?—A. I went to Ottawa and was introduced to Mr. Lumsden, and he sent me down—sent a letter to Mr. Doucet.

Q. When you were resident engineer were any of your classification reports or estimates corrected by the division engineer and sent back to you?—A. Not after they had been final; that is after I had written them out fair.

Q. Did he go over them with you?—A. Sometimes, yes.

Q. Don't you feel that every classification you ever made as a resident engineer was concurred in by your division engineer?—A. Yes, certainly.

Q. And you depended on him?—A. Yes, certainly.

Q. On account of your lack of experience?—A. Yes.

Q. To see they were right?—A. Yes.

Q. And you depended on him and the other engineers who came to see you to set you right?—A. Yes, quite so.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION, EVIDENCE TAKEN IN TRANSCONTINENTAL OFFICES, QUEBEC, AUGUST 17th, 1912.)

ARTHUR DICK, sworn.

By the Chairman:

Q. What is your position?—A. Division engineer.

Q. You have been division engineer for how long?—A. Since 1st July, 1909.

Q. Your division is from mileage 12 to mileage 102?—A. Yes.

Q. What division?—A. Quebec Bridge easterly.

Q. Who are the Residents under you at present?—A. The Residents are A. O. Bourbonnais, from mileage 12 to mileage 47, R. Martin, from mileage 47 to 68, A. A. Paradis from mileage 68 to 102. These are the resident engineers who are on the work now.

Q. You were formerly Resident west of the river, were you not?—A. Yes.

Q. For how far?—A. I cannot be sure of the exact mileage, mileage 52 to 163, I think, Residency 30.

Q. Were you Resident there?—A. Yes.

Q. And then you were promoted from that to your present position?—A. Yes.

Q. You accompanied the Commission on their inspection over your own district lately?—A. Yes.

Q. And also on the inspection west of the river?—A. Yes.

Q. As far as the end of steel?—A. Yes.

Q. In the classification of the material east of the river, how long had you been taking part in the classification of the material from the Quebec bridge to the end of your present division? How long have you been supervising the classification?—A. From July, 1909, till it was finished—not from mile 12 to 102; I first of all got division 2a, from mileage 68 to 102.

Q. From mileage 68 to 102 east of the Quebec bridge you supervised the classification for how long?—A. About three months.

Q. Commencing when?—A. July, 1909.

Q. And ending October?—A. In the fall; the grading was done then.

Q. You stopped because the grading was all finished?—A. Yes; there was some grading of one or two little cuts.

Q. You supervised the grading on the rest of your division for how long?—A. There was no grading to do, as far as I remember.

Q. After you became divisional engineer there was only three months' grading done on the whole division, practically speaking?—A. Yes.

Q. Who supervised that classification on your district before you went there?—A. On division 2a, it was Mr. Garnet; on division 3 it was Mr. Charlton, then Mr. Hurtubise; then I am not sure whether there was any more done during D'Abbadie's time or not. Then on division 4 I think it was all done by Mr. D'Abbadie.

Q. You cannot tell us very much about the classifying of the material on what is now your district?—A. No, sir.

Q. But the small amount that you did classify you can tell us about?—A. Yes.

Q. Who were the resident engineers on the part that you supervised the classification east of the bridge?—A. It was G. H. Parker on Residency 10, A. A. Paradis on Residency 9, and E. H. Lippe on Residency 8.

Q. What did you think of the ability of these Residents to classify?—A. Well, the classification I saw done, I thought they did it all right, according to our instructions.

Q. Then you thought they were competent?—A. Yes.

Q. Were they given any more instructions than a copy of the specification to go by?—A. They had Mr. Lumsden's blue print.

Q. Each one of these men had Mr. Lumsden's blue print?—A. As far as I know.

Q. You believe?—A. Yes.

Q. Had they anything else besides that?—A. They had the guidance of the—

Q. I mean in writing. You think they had the blue print?—A. Yes.

Q. Tell me, if you can, shortly, your practice in classification; what did you do? You had to classify the common excavation?—A. Yes.

Q. The loose rock and solid rock excavation?—A. Yes.

Q. Tell me how you handled the whole proposition?—A. Well, I classified solid rock in ledges or masses by measurement. You can arrive at the classification by measurement if it is in ledges or masses as a rule: sometimes you cannot, if the masses are isolated in the face of the cut.

Q. What did you do about boulders?—A. I estimated them on a percentage in any work.

Q. You did not measure them?—A. I tried measuring and I gave it up.

Q. You did not do it anyway?—A. No.

Q. And how did you treat loose rock?—A. Anything not classified—

Q. How did you get at the quantities?—A. If it were not defined, I estimated it on a percentage basis too.

Q. Do you mean to say if it were defined—? A. Defined means so that you could see it on the profile; I estimated it on a percentage basis.

Q. And how did you get at the common?—A. All material not classified as solid.

Q. How did you get at the quantities?— A. If it were in pockets, I would measure the pockets, and estimate the size of it as near as possible. It is only approximate, measuring the pocket, and a well defined line, I would measure it up, the same as I would measure up any other work.

Q. Do I understand that in all cases you did measure ledge rock?—A. Where ledge rock was defined, yes.

Q. It is always defined, is it not?—A. It might be detached.

Q. Ledge rock not detached you measured in all cases?—A. Yes.

Q. What do you call masses; what do you mean by masses?—A. Well, boulders cemented together, or ledge rock in masses—masses measuring over one cubic yard of boulders cemented together, conglomerate.

Q. Have you ever seen a face of ledge rock which, on the top, was shattered, not by dynamite, but by some force of nature, for, we will say, just for example, two or three or four or five feet from the top, but remained in its original position?—A. Yes.

Q. You have seen that?—A. Yes.

Q. And then, from that down, it was in an unshattered ledge; that is a common appearance, is it not?—A. I do not know if it is common; I think I have seen it.

Q. That is a common appearance, is it not, in limestone ranges?—A. That is common in limestone. I thought you were asking if I had seen it on the work.

Q. I mean generally?—A. Oh, yes.

Q. That is a common appearance in limestone ranges.—A. Yes.

Q. If you were going to build a railroad through a country of that kind, and you had present in your mind that there were boulders in that country, and you had also present in your mind that there was ledge rock in that country, and that there was shattered ledge, as I have spoken to you of, in that country, or broken ledge, would that not be a very apt way to describe it, as rock in ledges and rock in masses and boulders?—A. Yes.

Q. It would be an absolutely correct way to describe it, would it not?—A. Yes.

Q. Is that specification not to you susceptible of the interpretation that it does not include anything but rock when you look at it?—A. The specification, yes.

Q. Clause 34 "Solid rock excavation will include all rock found in ledges or masses of more than one cubic yard which, in the judgment of the engineer, may be best removed by blasting": Is not the specification exhausted literally when you have included in it boulders and solid ledges and the broken and the cracked ledges?—A. Yes.

Q. Can you conceive of anything else being included in it, if you confine it to rock?—A. No.

Q. But you did include something else in it, did you not?—A. Yes.

Q. In your personal opinion, ought there to be anything else included in it? —A. Well, I have just classified according to my instructions. We got instructions supplementary to the specifications, giving the chief engineer's ruling, and we were guided by those instructions.

Q. That seems to have been the impression that was got by the whole staff, that the proper interpretation of that clause was that it should include something besides rock?—That seems to be the impression which the whole engineering staff had, is it not, that something else besides rock might enter into the solid rock excavation?—A. I think so, yes.

Q. Were you ever told that you should not classify in that way—that you should not classify material which was not rock as solid rock excavation?—A. No.

Q. You were not undertaking to put an interpretation in the specification at all, were you? You were simply following your instructions?—A. Yes.

Q. And your immediate superior, when you were resident, was whom?—A. Mr. Darey. When I took over that work, I think probably a month or thereabouts after I got there, this blue print was first brought out, Mr. Lumsden's interpretation of 34, 35 and 36.

Q. Were you ever in the work when Mr. Lumsden was there?—A. No.

Q. Never saw him on the work at all?—A. No.

Q. Were you ever present when Mr. Schreiber was there?—A. No, sir.

Q. Describe to me, will you, what you classified, or what you know was classified, as solid rock excavation under the heading of masses?—A. Assembled rock containing 50 per cent or over of boulders, with the cementing matrix in between.

Q. When you say assembled rock, you mean rock of what size?—A. It might be of any size, provided the mass contains more than 50 per cent of rock.

Q. It might be as big as a pea?—A. No, no, assembled rock.

Q. Yes?—A. Beg pardon, rock measuring over a cubic yard cemented together.

Q. I think you had better take another run at that?—A. No, sir, boulders over a cubic foot, when the mass contains 50 per cent or over of rock.

Q. Do you use the word "over" advisedly?—A. Fifty or over.

Q. In your experience would you say that over the whole classification the average of rock was more than 55 per cent?—A. Yes.

Q. Where can you refer to me that it was?—A. To the profile, mile 160.

Q. It will be sufficient if you tell me that you have in mind one, about where?—A. About mile 160.

Q. 160 west of the Quebec Bridge?—A. Yes, about 160.

Q. Have you any other in mind?—A. It is hard to say at present. You see it is four years since I left that work. Here is a place at 161½, at the west end of the cut: 161.5.

Q. What was the east end?—A. Sand, and this was loose rock, with a percentage of boulders.

Q. You say that one would be over 50 per cent?—A. Yes, at that point in that cut.

Q. Take the whole of the assembled rock throughout that cut: what would you say the percentage of rock in the assembled rock amounted to?—A. I should say about 60 and 70 per cent of the assembled rock was rock.

Q. Have you any other cut in mind where you think it was over 50 or 55 per cent?—A. No, I cannot say that I have. I cannot remember it, anyway.

Q. Will you describe to me the cementing material that you have been speaking of as being in the assembled rock?—A. It might be that hard blue clay which had been turned in as solid rock, or—I do not know what the proper name for the clay is, but it is a yellow clay you often find in conglomerate, cement in the clay.

Q. Where was there any of the yellow clay? Can you tell me one of the cuts? Can you refer me to where I have seen any of it?—A. No, I do not know that I can.

Q. But generally speaking, what was the cementing material?—A. That blue material.

Q. It was always clay, was it?—A. Well, it was of a clayey nature.

Q. It was either clay or sand: it could not be anything else, as far as I can see?—A. It could not be sand; sand would not cement; I would say clay.

Q. Clay alone?—A. Yes.

Q. You accompanied the commission during this week over the portion of the railway that has the steel on it from mile 7 to mile 290?—A. Yes.

Q. And part of that was under construction?—A. Yes.

Q. Part of it was completed?—A. Yes.

Q. I suggest to you that, for nearly the whole of the distance, the material which is not rock was nearly all sand, or sand and clay mixed; what do you say as to that?—A. Well, judging from what I saw of it, there is quite a lot of material there, rock in masses.

Q. I am saying that the material other than rock of every description was sand, or sand and clay?—A. Well, I cannot say. I did not go out to examine it.

Q. From what you saw, I mean; you saw it from the train and got out where you got out?—A. Not very often; I did not get out any oftener than I had to.

Q. You were not well, but from what you saw, what would you say?—A. Judging from the slopes, I saw quite a lot of sand in the slopes.

Q. You were not well enough to get out, and did not get out and examine it on many occasions?—A. No.

Q. Would you not like to give a general opinion on it?—A. No, I did not go out and examine the pits or anything.

Q. In your opinion, I draw from what you said, that sand and clay mixed would not make cementing material?—A. Oh, it might; I would not say it would not.

Q. Have you ever seen it where it did?—A. Yes.

Q. Where?—A. In two cuts, one at mile 155 and one at mile about 157, Quebec Bridge west.

Q. What do you mean by cementing material? Do you mean material which will fasten the pieces firmly together?—A. Yes.

Q. That if you take up, for example, a piece of rock which weighed ten pounds, attached by this cementing material to a piece which weighed five, that the two of them would adhere together?—A. Yes.

Q. Did you see anything this week that would do that.—A. Well, you would have to have sufficient pressure to make them cemented material.

Q. But if you take two pieces of rock and put them together with cement, the cement will hold them together?—A. Yes.

Q. And you have to break them apart?—A. Yes.

Q. If you take two pieces of rock put together under any pressure, you may pull them apart without breaking the clay at all, may you not?—A. Yes.

Q. They are simply held there in the same way as if you drive a knife into a piece of board, by pressure?—A. Yes. What I mean is this, that if you take a piece of cementing material out of a cut, say of two feet length, that mass would always be cemented together; you could hold it by the end.

Q. You could not lay bricks in it and make the wall stay up?—A. I do not know.

Q. You would hate like poison to pay some person for doing it, would you not?—A. I do not think so.

Q. Is there any of that material that would take the place of mortar and cement in a building?—A. No, if it were exposed to running water it would break away.

Q. If it were exposed to air, it would crumble away?—A. I suppose it would.

Q. If it became dry it would crumble away?—A. No, I do not think so.

Q. Did you see a cut dug out last night?—A. No, sir.

Q. All that material, I suggest to you so far as you have seen, when it was exposed to the air, became dry and became disintegrated. Did you ever see cementing material used in buildings that did that?—A. I have seen mortar exposed to the water and frost.

Q. Too much sand in it and not enough mortar, was that not the reason?—A. I saw one instance in my own house.

Q. You would not have paid for it, if you had known it was there?—A. I would not like to have paid for it.

Q. It was not mortar?—A. It was not good mortar.

Q. It was not mortar as commonly understood; there was not sufficient lime in it to make it cement the bricks or stone together?—A. No.

Q. You did not examine these cuts sufficiently to form your opinion as an engineer as to whether or not they were very highly classified, did you?—A. No.

Q. By reason of your not being well?—A. Yes.

Q. Where you made the estimates, or revised the estimates, did you return the boulders of a yard or over separately?—A. In the monthly estimates?

Q. Yes.—A. In the sum total of all the boulders turned in that month, it was put in as a lump sum.

Q. When I say séparately, I mean separated from the other solid rock?—A. From ledge rock?

Q. Yes.—A. Yes, sir.

Q. And from assembled rock?—A. I would not be sure about that.

Q. In your returns ledge was one division of solid rock?—A. Yes.

Q. And boulders under a yard and over a foot cemented together, which, in the mass, made up more than a yard, was another heading, was it not?—A. Yes, assembled rock.

By Mr. Gutelius:

Q. Did the character of the material between the rock fragments have anything to do with your classification?—A. Yes.

Q. How would you classify a volume of boulders and rock fragments generally over a foot in size, which had its interstitial spaces filled with free sand?—A. Loose rock. Excuse me, I was referring only to the boulders and rock. I classified that on a percentage basis. I misunderstood your question. I was answering for the boulders over a cubic foot and under a cubic yard; that would be loose rock, and I would classify it on a percentage basis, and estimate on the face of the cut what percentage of the boulders were loose rock, and what percentage of the sand made up the common.

Q. If there were no stones in a cut of that character larger than a cubic yard, how would you classify?—A. If there were no stones in the cut larger than a cubic yard—that is, not as large as a cubic yard?

Q. Yes?—A. I would classify it in the same way, percentage.

Q. There would be no assembled rock in a cutting, unless it was cemented together?—A. No.

Q. If the material was loose rock sizes?—A. In the same cut, sand and loose rock?

Q. Yes?—A. On a percentage basis, I would return the boulders of loose rock size as loose rock, and the remainder as common excavation.

Q. If this same mass of loose rocks should have its interstitial spaces filled with hardpan, how would you classify it?—A. Solid rock.

Q. If the interstitial spaces should be filled with a material that, on account of its compactness, was difficult to pick, and yet, by working on a vertical face in a cutting, the rocks dropped out by a little movement with a pick or a bar, what would you call that?—A. Well, it depends how much labor it took to get the rocks to come out; if, in my opinion, the cut had best be removed by blasting, I would classify it as solid rock, and if I thought it could be worked just as satisfactorily by pick or bar, I would classify it as loose rock.

Q. Would you be influenced by the cost of removing it, either by hand, working from a face, or by shooting the whole cut?—A. No, sir.

Q. What is the basis of practicability?—A. If the contractor told me he thought the best way to take that cut out was by constant shooting, and I was under the impression it could be removed just as practicably by hand, pick, or bar, I would classify it as loose rock, unless I was assured the best way to take it out was by shooting, because I imagine a contractor might say that shooting was the only way to take it out, for the sake of the classification.

Q. Is not practicability, when boiled down, what it will cost? The most practicable thing is the cheapest thing?—A. Yes, sure, but that is a matter of argument sometimes between the engineer and the contractor.

Q. Did you ever have a case where the contractor shot this material and you thought he could take it out without shooting?—A. Yes.

Q. Were there many such cases?—A. No.

Q. Don't you think, really, that they put powder into many of these cuts, not that it was necessary, but that it just loosened up the thing and made it easier to take it out, and gave them an opportunity to say it was shot? Was it the practice of the contractors to try and lead you on by shooting in many of these cuts?—A. Not as a rule; there were one or two cases where it was done.

Q. Have you one such case in mind that you could tell me the story of?—A. In this cut at 160.4.

Q. Just tell me the story about it, shortly?—A. Well, the contractors claimed it was a cemented cut, it was all cemented material, and they claimed it was solid rock, and they kept all the old powder cans to show me how much powder they had been using in the cut, and wanted classification as solid rock on that account.

Q. Did they kick hard for it?—A. They did for a while.

Q. And what was finally done?—A. I could not tell you what the classification was without seeing the profile.

Q. Those are sand cuts?—A. Sand here.

Q. But generally it is sand country?—A. Yes, that portion.

Q. And they wanted solid rock for the boulders in that portion of this cut?—A. Yes.

Q. What do you say as to this classification of that cut; solid rock massed 11,000, loose rock 24,191, common excavation 18,693?—A. That is the final classification.

Q. What do you say to that 11,000 yards of massed material?—A. That is all right; that was arbitrated upon; I do not know whether there was a cut made in it.

Q. Do you believe there was 11,000 yards of material in there hard enough to be classified as solid rock?—A. Yes.

Q. Why did you tell me you did not allow it?—A. I did not allow it all. They wanted solid rock all through that cut for shooting; they claimed it was all cemented.

Q. I have noticed two separate kinds of cemented material on this district, one in which two stones twice the size of your hand would adhere together, if broken up in a large mass, and the other stones the size of an egg or less which would not

hold together, in what has been classified as assembled rock. Did your experience over your own district coincide with that suggested?—A. Not cemented together—no, sir.

Q. Everything that you have seen classified as assembled rock you think was cemented together?—A. Yes.

Q. You recognize from this blue print that the cementing is not an essential?—A. It does not say so there.

Q. Did you ever work under any other specification than this one?—A. No, sir, not in this country.

Q. Does it seem right to you, under this assembled rock classification, that the cementing material, which, in itself alone, in masses, would be classified loose rock, should, when it has stones in it up to 50 per cent, be paid for as solid?—A. Yes, because I think it could best be removed by blasting.

Q. As an engineer, does it strike you that that interstitial stuff, when it amounts to 49 per cent of the whole amount, should be paid for at solid rock prices?—A. I think it is a liberal classification—generous.

(N. T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN IN THE TRANSCONTINENTAL RAILWAY OFFICES, AT QUEBEC, AUGUST 19th, 1912.)

J. H. Holiday, sworn:

By Mr. Gutelius.

Q. How old are you?—A. Thirty-three.

Q. What division are you on?—A. Division 2.

Q. Where were you educated, and what was your experience prior to being employed on the Transcontinental?—A. Educated in England, and articled with the Great Northern Railway in England. and then I was contractor's agent after that. I was with the Great Northern for five years and contractor's agent for three years after that, and then I came out here, and then on this railway ever since.

Q. What year did you start here?—A. Started here seven years ago, 1905.

Q. This was your first railway work in this country?—A. Yes.

Q. You were resident engineer at Residence 20 while it was being graded?—A. Yes.

Q. It extends from mileage 36 to 52?—A. Yes.

Q. West of the Quebec Bridge?—A. Yes.

Q. In travelling over that portion of the line I noticed several road crossings that were supported by cribs on either side?—A. Yes.

Q. How did you happen to use that method of construction for those road crossings?—A. They were built after I left; I did the grading and they were built afterwards.

Q. Did you as resident or divisional engineer build any such crossings?—A. No, those are the only ones I saw on the line.

Q. You do not care to venture an opinion as to whether that was good railroad construction?—A. If I were asked, I would.

Q. If you were building them would you have built them that way?—A. I would have built them with fill.

Q. Looking over Residency 20, it occurred to me that considerable saving might have been effected by throwing the line at mileage 37 further north. Here is a fill about a mile in length?—A. Yes. I think they might have saved something there.

Q. You might have saved considerable filling by introducing another curve?—A. Yes. I think two or three curves.

Q. Did you do any locating on this railroad?—A. No, my first position was field draughtsman, and I went out as transit man. I never had charge of a party.

Q. I also noted that between mileages 42 and 43 that sub grade might have been lowered one to two feet, without interfering with the grade or the line?—A. Yes, I think that was raised on account of snow, to avoid the snow.

Q. It was not raised on account of water?—A. No, sir.

Q. Did you have anything to do with the establishing of the elevation of the sub grade there?—A. Nothing; it was all fixed when I went there.

Q. Did you make any recommendation in connection with lowering, or discuss the matter with your higher officers?—A. Not to my recollection.

Q. Did you know that you were expected to make suggestions in the interests of economy?—A. Yes.

Q. And you felt that, on account of the difficulties that might be encountered with snow, that it would be all right to leave that bank up that high?—A. Well, I thought we should have to ditch in any case in that kind of country, and the material we took from the ditch would just about make the embankment.

Q. Do you remember that that fill was made up of ditches from the side?—A. Yes.

Q. That would have been necessary in any event?—A. Yes. I had a great deal of trouble all through there with the farmers about the ditching and water rights. You cannot get rid of them at all.

Q. There was no train fill then?—A. No.

Q. Nor no borrow?—A. No, all made from the side ditch.

Q. And that reason applies to the whole distance from mileage 42 to 44?—A. Yes, sir.

Q. The cutting at mileage 41.4 is said to contain 1481 yards of solid rock, massed or mixed material?—A. That was not done in my time.

Q. Do you know what character of material that was?—A. No. I never did any work there at all; it was being completed when I left.

Q. You left before the work was started?—A. Before the cut was started.

Q. Was the cut at mileage 50.5 under construction while you were in charge?—A. Yes.

Q. What was the class of material that I see shown as 7,344?—A. That was mostly boulder.

Q. What was the material that was not mostly boulder?—A. Well, there were some portions that I classified as assembled rock, a portion perhaps 20 feet by 8, or something of that kind. There was a large mass of material there.

Q. That mass would be made up of small boulders?—A. No, fairly large boulders cemented together.

Q. A large proportion of the mass would be boulders of sufficient size to call a yard?—A. Yes, about 60 per cent of it would be rock.

Q. And what was the other 40 per cent?—A. Cemented material.

Q. If that 60 per cent were separated into loose rock, what would these two materials be classified as?—A. If the cemented material could be taken from the stone?

Q. Yes?—A. As loose rock.

Q. So that that 60 per cent, if separated, would be loose rock?—A. Yes.

Q. And when they are combined?—A. They would make solid rock under your assembled rock clause. Probably some of the rock would run over a yard.

Q. Now, if there were no item of assembled rock appearing in your instructions, and you had classified that material according to the book, could you consistently have made any solid rock of that clay and those small fragments of rock that were mixed?—A. A small proportion of it, possibly ten per cent.

Q. Could you consistently have given any?—A. Yes.

Q. Could you consistently have given any solid rock for that material which was composed of clay and sand, which we call cementing material, and stones less than a cubic yard?—A. No, sir.

Q. So that the instructions and the assembled rock clause is your authority for calling this material which is composed of loose rock, clay and sand, solid rock?—A. Yes.

By the Chairman:

Q. You have been divisional engineer for how long?—A. Four and a half years.

Q. And, as such, you have supervised the classification over all the Residencies?—A. Residencies 4, 5, 6 and 7.

Q. Does what you have said to Mr. Gutelius respecting assembled rock apply over all those residencies?—A. Yes.

Q. So there is nothing to be gained by my taking you over each one, to get your view on it?—A. I do not think so.

Q. Taking the mixed material over all your district that was put in as solid rock—you understand what I mean?—A. Yes.

Q. What was that composed of?—A. Well, in some cases——

Q. Generally, what was it composed of?—A. Boulders chiefly.

Q. Boulders and cemented material?—A. Yes.

Q. There was no fragmentary rock in it?—A. Generally speaking there was not.

Q. Was there a boulder measurement kept in your district of the boulders of a yard or upwards?—A. Yes, sir, in many cases.

Q. Was it the general practice?—A. We were not taking boulders regularly every day.

Q. Was there a record kept? I am not asking you now whether you counted them or estimated them or anything else. Was there a record kept, more or less accurate, of the boulders of approximately a yard and upwards?—A. Yes.

Q. You professed, then, to show separately the quantities of boulders of approximately about a yard by themselves?—A. In most cases, in many cases.

Q. Did any of those boulders creep into the mixed material measurement?—A. Oh, no, sir.

Q. Then the material returned as mixed material or massed material—which did you return it as, mixed or massed material?—A. Assembled rock.

Q. Am I correct, then, in saying that the material returned as assembled rock consisted generally of boulders of the loose rock size and cementing material?—A. Yes, sir, fairly large rock.

Q. I say loose rock size generally; I suppose there was a quantity of boulders of less than loose rock size in that?—A. Possibly in cementing material, yes.

Q. And that would be a large or a small percentage?—A. Small per cent.

Q. And I suppose there were occasional boulders of a yard and upwards?—A. Yes.

Q. But that would also be a small percentage of boulders of a yard and upwards in the assembled rock?—A. Yes. If I had gone through and taken out all the stones in the assembled rock which were under foot, I judge I would take out perhaps 20 per cent.

Q. If you had gone through and taken out all the big fellows of a yard and upwards that crept into the assembled rock, what would they amount to?—A. Oh, possibly ten per cent.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT TRANSCONTINENTAL RAILWAY OFFICES, QUEBEC, AUGUST 19th, 1912.)

ALEXANDER FERGUSON, sworn.

By the Chairman:

Q. You are a divisional engineer?—A. Yes.

Q. On the N.T.R.?—A. Yes.

Q. Your division extends where?—A. At present from Quebec to mile 91 on the north shore, and from the Chaudiere bridge to mile 12 on the south shore?

Q. And before you were in your present position what office did you occupy?—A. Divisional engineer on Number 9 division.

Q. What mileage was that division?—A. Mile 181.5 on the north shore to mile 26.5 on District C.

Q. Before that had you a Residency?—A. No.

Q. You never had a Residency?—A. No.

Q. Were you employed by the commission?—A. Yes.

Q. As locating engineer?—A. Yes.

Q. You located the line between what points?—A. Between the Quebec bridge and mile 22 on the south shore on first location, and between La Tuque and Weymontachene on the north shore.

Q. You located all along the St. Maurice River?—A. I ran some parts of that, but not continuously.

Q. Did not Mr. Grant locate part of that?—A. No.

Q. Did he locate any of this line?—A. He located from Quebec going west to Hervy Junction.

Q. I thought he was responsible for part of the location along the St. Maurice River?—A. I believe he was assistant.

Q. When did you have experience in classification before you became divisional engineer?—A. I did not have any experience as responsible engineer.

Q. Did you have it as an irresponsible engineer?—A. Well, I have seen classification in the old country.

Q. You were educated in your profession in Scotland?—A. Yes.

Q. And you practised it on the British railways before you came here?—A. No, sir, not on British railways. I was with a private civil engineer whose practice consisted of different works, waterworks, sewage works and small railway work—different works of that description.

Q. In Great Britain they classify all their work before they let their contract, do they not?—A. To a great extent.

Q. And then they let it on the estimates made before the work is done, upon the amount of material as classified?—A. Well, the quantities are more particularly taken out there; the materials are more carefully determined before any contracts are let.

Q. They are not determined here at all, are they?—A. No, sir, you could not say they were determined here.

Q. Over what portions of your divisions had you any actual supervision of the classification; that is to say, what classification was there done after you became divisonal engineer?—A. On division number 9, practically all of it.

Q. That division lies between what points?—A. 181 to 196.

Q. To what place?—A. Well the name of the place at the beginning of it is Bonhomme; that is a very local place. I do not think you will find it on the map at all; it is a Hudson Bay cache.

Q. How much above La Tuque is it? Is it on the Manuan River?—A. No, it is not as far as that.

Q. The Flamand river?—A. It is beyond the Flamand River; it is about six miles beyond the Little Flamand River.

Q. It commences about six miles beyond the Little Flamand and goes to where?—A. To the second Ribbon crossing.

Q. I will ask you first about the south side; you were divisional engineer over the Chaudiere cut?—A. Yes.

Q. Was there any assembled rock in that cut?—A. Not as I know of, assembled rock.

Q. What was the solid rock in that cut?—A. Ledge rock.

Q. There is no doubt about it; it was not, as you know, assembled rock?—A. No.

Q. It was pure ledge rock all through?—A. It was ledge rock on the bottom of the cut; above the ledge rock, up to from one to three feet from the top, was loose rock.

Q. I am speaking of the solid; all the solid that has been returned was what?—A. Was ledge rock, as far as we could measure it, as closely as we could measure it.

Q. You did not profess to return anything but ledge rock as solid?—A. Not while I was there.

Q. You were there all the time?—A. No.

Q. How long were you there?—A. I was only there from June of last year.

Q. Had you any reason to believe or understand, from anything you know, either since you have been divisional engineer, or before that there was any assembled rock in that cut?—A. No, sir. I have no reason to believe it.

Q. You believe that all the solid rock was ledge?—A. Yes; that is as closely as it could be measured.

Q. The resident engineer put in a lot of it as assembled rock?—A. Yes.

Q. Did you revise the classification on the south side?—A. No, sir.

Q. You looked over it; I do not mean you revised it down or up, but you revised it?—A. Well, I classified the material which came out after I went there.

Q. I am speaking since you have been responsible for it?—A. Exactly.

Q. Did you raise it, or lower it, or leave it as the resident had put it?—A. In the Chaudiere cut the material was classified after I went there, so far as I know, similarly to what it was done before.

Q. Did you raise it or lower it?—A. I did not raise it or lower it, because I could not see how it could be altered.

Q. You were satisfied with it, then?—A. Yes, I was satisfied with that classification.

Q. Your western division commences at mile 181?—A. Yes.

Q. In that division sand predominates, does it not?—A. Yes.

Q. And right at the first cut, 181, it is classified as assembled rock, is it not?—A. In one portion of the cut——

Q. Have you the quantities in that Residency?—A. No, I have not; I think there must be a statement somewhere; they are not on my profile.

Q. Your divission commences at what point?—A. 181.32; that is the first cut on my division, Residency 33.

Q. 181.9 is assembled rock, is it not?—A. No, sir, only part of it assembled rock.

Q. And loose rock and common excavation?—A. And solid rock and mixed material.

Q. Assembled rock covers all the mixed material, does it not?—A. No.

Q. Well, there is no ledge rock in it?—A. No.

Q. Describe that cut to me, how it is made up. In the first place is the matrix in that sand?—A. The matrix is a very compact sand, containing a percentage of clay in it.

Q. Is there one per cent of clay in it?—A. I could not estimate the percentage of clay.

Q. You know pretty well whether there is large or small amount of clay?—A. In the sand, but it is intermixed.

Q. There is a small amount of clay in it?—A. The clay covers the particles of sand.

Q. You would call it a sand cut?—A. No.

Q. What would you call it?—A. I would call it more or less of a hardpan cut, as near as I could get at it.

Q. Is it sand or clay?—A. It is neither.

Q. Could you call it clay?—A. No, and you could not call it sand, but I think, if anyone were looking at it he would say it is sand.

Q. And it is a sort of slaty quarry sand, more like quicksand than anything else?—A. Not like a quicksand.

Q. It is a very fine sand?—A. Yes.

Q. And how does it differ from the quicksand?—A. That sand, as it is in the cut, is very hard.

Q. In what does it differ from the quicksand?—A. It does not differ very much from the quicksand.

Q. It does not differ at all, does it?—A. I could not say that it did differ, under certain circumstances.

Q. Circumstances do not make any difference in the said sand; it is either one thing or the other; it is either a coarse sand or a fine sand, or some class of sand, under all circumstances?—A. I would describe a quicksand as a sand that you would sink in if you walked in it.

Q. If you had that sand wet enough you would go down over your head before you knew where you were?—A. No, not by any means.

Q. If it were wet enough?—A. I have never seen it in that condition.

Q. What I am trying to find out from you is whether or not that is a very fine sand?—A. It is.

Q. It would not pack if it was not?—A. No, it would not.

Q. And it is of a bluish tint?—A. Yes.

Q. And you can find, if you look at it and examine it, a trace of clay in it?—A. Yes.

Q. That is a fair description of it?—A. It is a very fair description.

Q. And is there any rock at all in that cut?—A. Yes, sir.

Q. What is the rock that is in it like?—A. It consists of boulders.

Q. Of what size?—A. All sizes, varying from the size of a man's head, or a little smaller, to several yards.

Q. Will you tell me approximately what percentage of the excavated material from that whole cut is boulders?—A. About 50 per cent.

Q. Will you tell me approximately what percentage of those boulders are of solid rock sizes?—A. I should say probably 50 per cent of those.

Q. Did you return any of that cut, or was there any of that cut returned as boulders?—A. Yes, sir.

Q. Not as mixed material?—A. If I had the cross-section I could tell you.

Q. Brown said, I think, that 50 to 55 per cent was solid rock; what do you say?—A. It is impossible to say. The percentage of cementing material in that cut would not be more than 25 in that cut, in the mixed material. The boulders were so closely packed together that I do not think there would be any more than that.

Q. Divide it up on paper and show me how you divide that cut up in your own way. In the first place you have common excavation about a fourth of the cut?—A. Yes.

Q. Then loose rock?—A. Yes; that loose rock represents the material in between the boulders—that is the matrix and the small boulders in the west end of the cut.

Q. There is no matrix at all where there is loose rock?—A. Oh, yes.

Q. What does this section of the cut show (producing cross-section)?—A. This section shows here at the entrance from the east assembled rock.

Q. As you enter the cut?—A. Yes.

Q. And then the next shows assembled rock?—A. Yes.

Q. And the next shows assembled rock?—A. Yes.

Q. How far does that assembled rock extend through the cut?—A. From 1677.93 to 1678.94, or 101 feet. That is all assembled rock, but it stops there.

Q. How long is the cut?—A. 1,500 feet long.

Q. How many feet of common excavation is there?—A. 206 feet.

Q. Then you come to mixed material for the rest of the distance, do you not?—A. Yes.

Q. Is all your assembled rock in the first hundred feet of the cut?—A. Yes, all in the first 100 feet.

Q. What percentage of that assembled rock is boulders of the solid rock class?—A. Not more than 50 per cent.

Q. Is there 50 per cent?—A. Oh, yes.

Q. Why did you not return them by themselves?—A. Because we considered the material assembled rock as a whole.

Q. Then 50 per cent of those boulders in that are of the loose rock and common excavation size?—A. Yes.

Q. And the contents of that 100 feet is how much?—A. 2564 cubic yards.

Q. What do you say is the proportion of the matrix in that?—A. I should say not more than 20 or 25 per cent.

Q. Then you go along after you pass the common and you come to the mixed material?—A. Yes.

Q. What is the difference between the mixed material and the assembled rock?—A. The matrix in the mixed material is not so hard.

Q. What do you classify the mixed material as?—A. I estimate the percentage of solid rock boulders and return the remainder of it as loose rock.

Q. Then you do not return the matrix in that as solid rock?—A. No.

Q. But you do return the matrix in the east end as solid rock?—A. Yes.

Q. Do you return any of the boulders in the mixed material as loose?—A. Yes, sir.

Q. Were the boulders estimated in that cut in the mixed material portion?—A. They were.

Q. What quantity of boulders was there in that mixed material of the solid rock sizes?—A. In the mixed material I think we estimated about 60 per cent.

Q. Of what?—A. Of the whole mass.

Q. To be big boulders?—A. To be yard boulders.

Q. Yard boulders or over?—A. Yes.

Q. How much of that part of the cut was matrix?—A. I do not think there would be any more than 15 per cent of it.

Q. And the remainder was what?—A. Small boulders.

Q. It ought to be pretty nearly a clean rock cut of one kind or another, excepting the common excavation portion?—A. I do not quite understand you.

Q. There is very little of anything but rock in that?—A. It is nearly all rock.

Q. And do the sides now show?—A. No, sir, they do not.

Q. Did we make another cut and examination in there?—A. No, sir, we did not.

Q. That is 181.9?—A. Yes.

Q. Who is B.?—A. Brown.

Q. I have this note, "Brown says he will tell me when the soil differs. We examined in the culvert some very hard moist clay with a little sandstone; we also got sandstone from here". Was that when we went down into the hole?—A. Yes.

Q. Take 182.5; there is no common excavation in that at all?—A. I do not think so.

Q. How would you describe that cut?—A. That cut I would describe as being similar to the west end of the previous cut which we just discussed, I think —similar in materials that it contains.

Q. Is the S.R.M. all solid rock there?—A. Yes.

Q. What is the loose made up of?—A. The loose is made up of the small boulders and the remainder in between the boulders.

Q. The loose rock in that cut is nearly three times as much as the solid?—A. Yes, sir.

Q. So that it cannot be anything like the other cut?—A. It is very like the other cut, only that the boulders in it are smaller.

Q. What proportion of that cut was large boulders?—A. I think between 30 and 40 per cent, if I remember correctly.

Q. Not of the whole cut; that could not be right; you cannot be right on that, because there is not more than a quarter of the whole thing——A. Well, I may be confusing some of those cuts.

Q. If you do not recollect it, I will not ask you?—A. I cannot recollect the classification of all the cuts.

Q. How was that cut taken out?—A. Part of it I think was taken out with picks and shovels and part of it was blasted.

Q. Which part of it was taken out with picks and shovels?—A. I could not tell you that.

Q. Did you put that in as solid rock?—A. No, sir, not in that cut.

Q. Did they put in anywhere material that was taken out with pick and shovel as solid rock?—A. Never on my work.

Q. Was that which was blasted, blasted with dynamite or black powder?—A. When it was blasted in the cut it would be black powder principally, and then the boulders would be blasted with dynamite.

Q. That is what you call bulldozing?—A. Yes.

Q. I am not speaking of that, but I am speaking of the way the cut would be loosened up?—A. It would be loosened up principally with black powder.

Q. Did they not run a hole in under—dig a hole in with a shovel?—A. Yes.

Q. They dug the holes in with a shovel?—A. In all cuts on that division.

Q. On your division is that not the way it was done usually?—A. Yes.

Q. Taking a long-handled shovel, making a hole in the material, and then at the bottom of the cut put in your black powder and turn it loose?—A. Yes, although on some of the cuts they drilled it.

Q. But in the majority of them?—A. I know only of some four or five cuts where they used drills to drill the material.

Q. Is that not a common habit in sand pits?—A. Yes.

Q. So that the fact that they put in this black powder in little tunnels, if I may call it that, made with a shovel is no proof that it was very hard material?—A. Not at all.

Q. You would not be surprised to find that practice was adopted in ordinary sand pits used for building purposes?—A. I know it is the practice.

Q. And they just blasted this with black powder in your district, in the same way as they would a sand pit?—A. Yes.

Q. And that would bring out the whole face of the cut as far back as the powder affected it?—A. Exactly.

Q. You would not call that any more than occasional blasting?—A. I did not consider it any more than occasional blasting at any time.

Q. Then in your opinion, it was not necessary to use continuous blasting generally through your district?—A. On those cuts I do not think it was.

Q. I am speaking now in the material that was returned as solid rock?—A. I think there is only one place in my opinion where that material has been returned as solid rock.

Q. In this cut you returned a lot of solid rock, and the only blasting was in this cut at 182.5; the only blasting was as we have described it?—A. For the loosening of the material, yes, sir.

Q. Did you return a lot of that cut as solid rock?—A. Yes.

Q. Do you consider, then, that that material is sufficiently cemented that it will not break up with occasional blasting, to justify you in calling it solid rock? —A. We did not call that material solid rock.

Q. It is marked on your profile, if I understand it correctly, 1630 solid rock: S.R.M.?—A. Solid rock in mixed material, 1630.

Q. The blasting that was done in that material was done in the way we have spoken of just now?—A. The blasting to loosen the solid and the loose.

Q. But do you consider that the rock was cemented in that cut?—A. No, sir, I do not.

Q. So that it is a misnomer to call it S.R.M. then?—A. Not as we describe our material.

Q. Did you describe anything as solid rock material where there was no cementing matrix?—A. No, sir. That material is not what I consider assembled rock. I thought you were speaking of assembled rock.

Q. You classified under the heading of solid rock ledge rock?—A. Yes.

Q. And boulders of a solid rock size?—A. Yes.

Q. And cemented boulders?—A. Yes, which we called assembled rock.

Q. You called the cemented boulders assembled rock?—A. Exactly.

Q. Now, we have got rid of three classes; are there any more?—A. Not to my knowledge.

Q. What does S.R.M. mean?—A. Solid rock in mixed material, which represents the yard boulders in that material.

Q. Why do you not call it boulders?—A. Well, we have always understood that that description of solid rock in mixed material means boulders.

Q. But you have a column for boulders by themselves; did you return that as boulders?—A. We returned it as boulders.

Q. Purely and simply?—A. Purely and simply as boulders.

Q. Where can you find boulders in a section that is not in mixed material? —A. We have made a distinction between assembled rock and mixed material.

Q. Where can you find boulders in a section that is not in mixed material? —A. I do not know where you can find it, but we used that as a convenient term.

Q. It is a most inconvenient term to use three words where you need only use one?—(No answer.)

By Mr. Gutelius:

Q. In arriving at the cubical contents of solid rock in mixed material, did you measure the large boulders separately or estimate them?—A. We estimated them in the most of cases.

Q. Then where boulders are covered in mixed material, it is estimated yardage of boulders?—A. Estimated yardage of boulders, exactly.

Q. There is a classification, with which you are familiar, spoken of as solid rock masses, in which the rock is not solid rock size?—A. Exactly.

Q. You have in mind this distinction in giving your evidence?—A. I have.

Q. Is there not some solid rock classification on your division composed of mixed material in which rock masses are all less than solid rock size?—A. There is material returned on my division in which all the boulders are less than solid rock size.

Q. And paid for as solid rock?—A. Paid for as solid rock.

Q. What authority did you have for passing such material as that as solid rock?—A. We had the authority of the chief engineer's circular, I do not remember what date it was issued.

Q. The blue print with the five or six classifications?—A. Yes, exactly.

Q. That would come under his diagram number 5?—A. Yes.

Q. Which he calls in parenthesis assembled rock?—A. Yes.

By the Chairman:

Q. Then you will commit yourself to this statement that wherever you put down in an estimate solid rock in mixed material, you mean only boulders?—A. Exactly.

Q. Of solid rock size?—A. Yes.

Q. Excluding everything else?—A. Yes.

By Mr. Gutelius:

Q. Boulders and rock fragments?—A. Yes.

By the Chairman:

Q. So that in reading your estimates, we must bear always in mind that that is another name for boulders of rock size?—A. Yes.

Q. What do you mean by assembled rock; describe that?—A. Assembled rock is material which contains boulders which may be of any size, which are cemented together by some hard cementing material; then the whole mass of that is called assembled rock.

Q. Do you think that sand can cement anything in your district?—A. I think so, when it gets sufficiently hard.

Q. I am asking if that sand, or any of that sand, cements anything?—A. I think it can.

Q. Do you think it does?—A. I think it does.

Q. What do you mean by cementing?—A. Binding materials together—the other materials that are contained in it together.

Q. Then the boulders will, I take it, in some cases lie on the same plane, one next to the other, with cementing material between them?—A. They do.

Q. Supposing we removed all the material on the top and round the outside, and only leave that in which the bed and the cementing material lie between them. could we not lift them right out of that bed?—A. I do not understand the question.

Q. I will illustrate. I have your boulders here, and the blue paper underneath is the bed into which they sink, and the material is in contact with the whole base of those two boulders?—A. Yes.

Q. And the cementing material buried these boulders, and I have stripped it all away excepting that which is between the two boulders and that on which they rested, could I not lift that off the bed?—A. Not if it were cemented.

Q. But in that material. Of course if it were cemented I could not, but could I not lift it out of any of that material?—A. That material which you describe in those cuts?

Q. In any cut on your division?—A. I think when you get into material like that up at mile 15—

Q. But in any cut on your division, could I not lift it out and leave it like a man leaves his foot-prints in the sand?—A. I never studied that phase of it. I think practically in all the cuts you could do that.

Q. And just leave an impress like a man's foot would leave in the sand?—A. Exactly.

Q. And if I could lift up one boulder, and lift it away from the bed in that way, would the other boulder come with it?—A. Sometimes.

Q. Do you think that there is any sand in your cut which would make one boulder adhere to the other, so that they would lift up?—A. Not large boulders, but small ones.

Q. I am speaking of large boulders?—A. No, not the large boulders, by any means.

Q. They would come away from each other, as they would come out of the bed, would they not?—A. Yes, but in some cases they would come out so that there would be some of this material sticking to them with small boulders in it.

Q. Like wet sand would stick to anything?—A. No, I mean in its perfectly dry condition.

Q. Where would you find that?—A. I think you would find that up at mile 15.

Q. You would not find it generally through your division?—A. There is only, I think, perhaps one case I have in mind where I would find it.

Q. So that there are not in this cementing material that you speak of, excepting in that case, any cementing properties whatever, are there?—A. I am not describing that material as cementing material.

Q. You have assembled rock in here?—A. I have.

Q. And it must be cementing material according to your evidence?—A. I think only in two or three instances have I got cementing material.

Q. In your whole division?—A. In my whole division.

Q. Then there is no assembled rock in your division, excepting in two or three instances?—A. If I remember rightly.

Q. Will you tell me where those two or three instances are?—A. There is this instance that we have just examined at 181.9.

Q. Do you say that at 181.9, the boulder in the example I have already given to you, could not be lifted out of the bed, just as a man's foot would come out of the sand?—A. I think that it would lift out as you describe in that material.

Q. So that it is not cemented material?—A. Not in my opinion.

Q. But you have assembled rock in that cut?—A. Yes.

Q. How do you figure out your assembled rock where there is no cementing material?—A. That cut was classified as assembled rock by the district engineer.

Q. But you did not classify it as that?—A. I was not certain as to what to classify it.

Q. What would you classify it as now, with all the information you have now?—A. I think I would still be in doubt.

Q. Then in your division, assuming that assembled rock must be cemented together by some matrix, is there, in your opinion, any assembled rock?—A. There is.

Q. Can you tell me where?—A. I can.

Q. How much of it is there?—A. There are only a few yards. I could not tell you exactly how many yards, probably two or three hundred yards.

Q. In your whole division?—A. In the whole division there is so little of it that I could not give an opinion as to how much there is.

Q. It is as rare as the dodo?—A. Yes. You can figure it out in hundreds of yards instead of in the thousands. That is my opinion.

Q. You have seen all the district between the river and the west end of your division?—A. Yes.

Q. Is there any cementing material from the river up to the end of your division?—A. I could not say; I have not met with it, as far as I have seen.

Q. You have gone over it how many times?—A. I have gone over it a few times.

Q. Have you ever seen any?—A. I cannot recollect.

Q. Not that you recollect?—A. No.

By Mr. Gutelius:

Q. Referring to that number 5 diagram in the Lumsden instructions, this diagram is not drawn to scale?—A. No.

Q. It does not say anything about the material between the boulders?—A. It says nothing about the material between the boulders.

Q. Whether it is cementing material, or air, or water, or what not?—A. Exactly.

Q. Suppose you had a mass of small gravel, small fragments less than loose rock size that looked just like that blue print, could you, under this blue print instruction, classify that as solid rock?—A. You said nothing about the material in between?

Q. We first said that material in between could be anything, according to this?—A. I could classify that as solid rock under the blue print diagram, if the material could be more practically removed by blasting than by any other process.

Q. That is, under the blue print, you could classify as solid rock material which, under the general specification, is common excavation, provided the material in question is best removed by blasting?—A. Yes, I think that is right.

By the Chairman:

Q. Then if you saw a cut which, without testing it, appeared to be common excavation, and it resembled in appearance number 5 on this blue print, if you found on examination that you had to continuously blast that, would you consider under number 5 you could put it in the solid class; that is, if its appearance was the same as on the diagram?—A. Yes. Under those instructions I could classify it as solid rock.

Q. So, then, the instructions are not exact?—A. They are certainly not exact.

Q. Coyoting is putting powder into a hole such as dug by the prairie wolves? A. Yes.

By Mr. Gutelius:

Q. Have you made a study of the alignment in the vicinity of the Chaudiere cut?—A. No, sir, I have not done so. I have never had time since I came down here to do that.

Q. You were asked to pay special attention to excavations in the sides of cuttings at mileages 120.9 and 162.3 west of the river on our recent trip?—A. Yes.

Q. Will you tell me what you thought that material should be?—A. Well, at 162.3, that is material which I would classify as mixed material.

Q. And your mixed material is boulders en masse?—A. My mixed boulders consist of loose rock with the yard boulders returned as solid rock.

Q. And the remaining material you would return as loose rock?—A. Yes.

Q. And how about 120.9?—A. That was a very much harder cut. The matrix in it was very hard in the pit which I tested. I would have to describe that cut similarly to the other. The matrix is very much harder, and I would classify it as a mixed material cut.

Q. In the matter of curvature limitations, will you prepare a statement for me showing what savings could be effected, roughly, had the curvature been increased to ten degrees, covering 200 miles west of Quebec bridge? You will send this to me?—A. Yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT N.T.R. OFFICES, IN QUEBEC, AUGUST 19th, 1912.)

R. A. Black, sworn:

By Mr. Gutelius:

Q. What is your age?—A. Thirty.

Q. Where were you educated?—A. In Manitoba public schools, Winnipeg, and Manitoba College.

Q. What experience did you have before you came on the Transcontinental?—A. I joined the C.P.R. in the spring of 1898, and I worked with them till October 30, 1909.

Q. How long?—A. 11 years with the C.P.R.

Q. You held positions on the C.P.R. of resident engineer on construction?—A. Yes. Up to May, 1902, I was rodman, and instrument man, and in May, 1902, I got Residency, and I was Resident after that, in charge of work after that.

Q. You were employed on the N.T.R. in what capacity first?—A. I came on as locating engineer.

Q. What portions of the line did you locate?—A. I came in and we did not do any locating. I joined a party, and took a division on construction.

Q. What division was that?—A. Division 10, and I revised their old division.

Q. And you have been divisional engineer then practically all during your entire tenure with the N.T.R.?—A. Yes.

Q. Were you on the double track work between Winnipeg and Fort William?—A. Yes, I was there on location, two different times.

Q. What was the limiting degree of curvature on that line?—A. I do not remember.

Q. What were the sharpest curves you recall?—A. I think a ten degree, I am not certain.

Q. In any event, there were curves of that character on that double track?—A. Yes. I was running level, so that I could not say for certain what the curves were.

Q. What were the limiting grades that you were working on—maximum grades?—A. I think it was a one per cent; I would not be certain of that either; it is some years ago.

Q. Did you use momentum grades?—A. Yes. We put them on our profiles, whether they were built or not.

Q. In the classification on the C.P.R. work did you ever classify such material as is known on the present work as assembled rock as solid rock?—A. No, sir, not as solid rock.

Q. Did you ever know of any material which was not rock being classified as solid rock on the C.P.R.?—A. I never had a case.

Q. You never heard of anyone else, either, classifying mixed material as solid rock?—A. No, sir.

Q. How did the prices paid on the C.P.R. contracts that you were engineer of compare with the prices paid on the your division on the National Transcontinental?—A. They were low; that is all I can remember.

Q. The C.P.R. prices were lower?—A. Yes.

Q. So that, if this railway had been built under C.P.R. specifications and C.P.R. prices, as you knew them, it would have been constructed cheaper, at least to the amount of the difference between loose rock and solid rock for the portion called assembled rock in this contract?—A. Yes, sir, I think it would. Those prices I refer to were nearer the main line.

Q. It should be pointed out, however, that C.P.R. prices would doubtless have been increased, on account of the isolated position of the N.T.R.?—A. Yes.

Q. Did you ever know, in your experience, of location being influenced by a desire to secure straight track on trestles?—A. No, sir, I do not think so.

Q. Did you ever hear, in your engineering experience, of a rule that all steel bridges and steel trestles must be built on straight track on tangent?—A. I never had it in my experience.

Q. This was a new experience to you?—A. Yes.

Q. Did you ever do any locating prior to coming on this railway?—A. I have done revising.

Q. But in your revisions it would be necessary for you to follow the policy of the organization for whom you were working?—A. Yes.

Q. Did you ever have instructions that limited the curvature absolutely, without reference to cost prior to going on this division?—A. No, I had not.

Q. You always were provided with a valuation, sort of sliding scale schedule?—A. Yes.

Q. In the location here you were given definite instructions?—A. Yes.

Q. Six degree as an ultimate maximum?—A. Yes.

Q. An iron-clad rule?—A. Yes.

Q. Have you ever found it necessary in your previous experience to make fills of rock borrow?—A. No.

Q. Were these railways with which you were connected built with wooden trestles?—A. Yes, all of them.

Q. If wooden trestles have been used on your division, what savings would have been effected?—A. We would have saved the difference between the cost of wooden trestles and the cost of the permanent structure, whether it be bridge or culvert and train fills in cases.

Q. It would be possible for you to secure statements from the district and divisional engineers to show just what this saving might have been, would it not?—A. I think so, yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN IN OFFICES OF N.T.R., AT QUEBEC, AUGUST 10th, 1912.)

N. R. Beaudette, recalled:

By the Chairman:

Q. We want the field books from you? Are they in English?—A. Yes. This is the first book, Page 53 has reference to the big cut.

Q. It is kept according to date?—A. Yes.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN BETWEEN GRANT AND COCHRANE: JUNE 9th, 1912.)

G. L. MATTICE, sworn:

By the Chairman:

Q. You are an engineer by profession?—A. Yes.
Q. How long have you been an engineer?—A. Since 1897—fifteen years.
Q. And when you graduated as an engineer, what was the first engagement you had in your professional capacity?—A. I worked for about three years at electrical work, telephone, electric light and electric railway.
Q. Any construction in electric railways in that?—A. No.
Q. What next?—A. Then I started as rodman on the St. Lawrence and Adirondack.
Q. And served as rodman for how long?—A. One year.
Q. After that?—A. Instrument man.
Q. For how long?—A. Possibly two or three years, I cannot tell you exactly from memory.
Q. When did you first take up construction work? When did you first become connected with construction work?—A. When I went on as rodman.
Q. When did you first take up any work which required you to have any interest in or anything to do with classification?—A. In 1899.
Q. What were you doing in 1899?—A. I was resident engineer on the Rutland Railway.
Q. I thought you graduated in 1897?—A. I graduated in 1892, but did not really start work till 1897. I am wrong in my dates; it must have been 1894.
Q. Had you any experience in classification before you came on this railway?—A. Yes.
Q. Where?—A. Rutland Railway.
Q. How long?—A. Two years.
Q. And then?—A. Algoma Central Railway.
Q. For how long?—A. Two years.
Q. Do you recall what your specification was when you were on the Rutland Railway?—A. No, I do not.
Q. Do you recall what it was when you were on the Algoma?—A. Not in detail.
Q. Was it similar to the specification on this road?—A. I think we had a hardpan classification.
Q. Had you the ploughing classification, the ploughing test?—A. I think that is in nearly every specification.
Q. Had you that classification?—A. Probably.
Q. You do not recollect?—A. I do not recollect.
Q. How long were you on the Algoma Central?—A. Two years.
Q. In what capacity?—A. Resident engineer.
Q. Then you came from the Algoma Central to this line?—A. No, sir.
Q. Where did you go then?—A. To the C.P.R.
Q. Where were you employed there and in what capacity?—A. Resident engineer on grade reduction.
Q. Where?—A. Between Fort William and Winnipeg.
Q. How long did you continue there?—A. One year.

Q. Where did you go then?—A. Town engineer for Kenora.
Q. How long there?—A. One year.
Q. After that?—A. Locating engineer on this road.
Q. Then you came on this road in what year?—A. 1905, I think in the spring.
Q. How long did you continue as locating engineer?—A. A year and a half.
Q. Where did you locate?—A. From a point west of Lake Nipigon westerly about 75 miles.
Q. For the Government?—A. Yes.
Q. Did you use the G.T.P. material on that location?—A What kind of material?
Q. Their survey plans?—A. Never saw any.
Q. Did not use them in any way?—A. No.
Q. Did you locate the line as it was finally adopted?—A. No, I made the first location.
Q. How close did you come to the present line?—A. Oh, they used probably half of my location.
Q. It is in the same country?—A. The country that I developed was used, and revised; three men made this location, and in some cases more.
Q. Have they gone any distance from it?—A. No.
Q. After you got done locating what did you do?—A. I was given charge of a Residency on division 7, district F.
Q. Whose contract?—A. J. D. McArthur.
Q. Where is that division?—A. From Kenyon Lake to the Winnipeg River.
Q. That is not a country similar to this in which we are now?—A. Not at all.
Q. What is the general description of that country?—A. Rock.
Q. And after you finished on that, and you left that Residency, where did you go?—A. I was appointed divisional engineer in charge of that division.
Q. And after that?—A. I took charge of Division 3 on the same district.
Q. When did you come down in this country?—A. In October, 1909.
Q. October, 1909, you were transferred to where?—A. North Bay, as district engineer.
Q. Between what points?—A. The Ontario boundary and mile 248 west.
Q. That is the boundary between Ontario and Quebec?—A. Yes.
Q. From the Quebec line to mileage 248?—A. Yes.
Q. About where is mileage 248? Is it east or west of Grant?—A. It is sixteen miles west of Grant; that was the full extent of the district at that time.
Q. And have you continued as district engineer ever since?—A. No.
Q. How long did you remain district engineer?—A. One year.
Q. Did you get your present position after that?—A. Yes.
Q. What is your present position?—A. Assistant district engineer.
Q. Who is the district engineer?—A. Mr. Balkam.
Q. Does your present work extend over the same territory as it did when you were appointed district engineer?—A. It has, in a manner.
Q. So that it covers the old district, and has how much more added to it?—A. About 120 miles on the east end and 60 miles on the west.
Q. You ran into Quebec for 120 miles?—A. Approximately that, yes.
Q. What are your duties?—A. General inspection duties in the office and in the field.
Q. Have you anything to do with the classification?—A. Yes.
Q. What are your duties in respect to classification?—A. To consult with the resident and divisional engineers. These are my present duties as assistant district engineer you are speaking of.
Q. What were your duties as district engineer first?—A. As district engineer, to approve of the classification or not.

Q. To revise the classification?—A. To revise the classification; that is the better way to put it.

Q. Then, as such, during that year there was no classification done in your district that was not revised by you?—A. No.

Q. And as assistant district engineer, has there been any classification done that has not been revised by you?—A. Yes.

Q. Passed on by you in any way?—A. Passed on by me, yes, approved of.

Q. Plenty of it that has not been?—A. There has been none that I have not approved by signing estimates. There has been classification made that I have not seen personally made.

Q. Did you verify, so far as you thought necessary, to justify you in approving of it?—A. Yes.

Q. Are you familiar with the classification in your whole district?—A. Yes, except for a portion of the east end which was done under the former district engineer, before it was transferred to District D.

Q. Then are you familiar with the classification on that portion that you have last spoken of, that took place before you were made district engineer?—A. Just from seeing the estimates and going through the cuts.

Q. You are familiar with it, then?—A. Yes, I never saw the work done.

Q. Is that work classified the way you would have classified it?—A. Yes, I think so.

Q. So that I may take it that you approve of the classification from end to end of what now constitutes the district?—A. I think so.

Q. What did you classify solid rock excavation?—A. Ledge rock occurring in masses and in place, in situ, as the book says.

Q. I do not think it does?—A. I thought it did—rock occurring in ledges or masses of more than one cubic yard; is that not it?

Q. "Rock found in ledges or masses of more than one cubic yard, which, in the judgment of the engineer, may be best removed by blasting"?—A. Yes.

Q. You will notice that that does not include all rock that is in ledges or masses of more than one cubic yard, but only such as, in the judgment of the engineer, may be best removed by blasting?—A. Yes.

Q. What do you mean by rock in masses?—A. Large pieces of rock, and under Mr. Lumsden's ruling—

Q. Never mind Mr. Lumsden; I am asking you to describe a mass of rock which you consider solid rock excavation under this specification?—A. Nothing but what it speaks of.

Q. What does it speak of?—A. Ledge and masses of rock.

Q. What is a mass of rock? How will I know it if I go to see it?—A. It is either a boulder or large piece of rock which has been detached from its original place.

Q. Then you consider a mass is that which is—A. Which is geologically a rock.

Q. And which is one piece, either of boulder or of fragments?—A. That has always been my idea of rock.

Q. Or masses of rock?—A. Masses of rock I never saw until I saw that specification.

Q. You think a mass of rock is either a fragment or boulder?—A. That has always been my idea.

Q. Have you classified anything as solid rock excavation under the word "masses," other than boulders of more than one cubic yard and fragments of more than one cubic yard?—A. Yes.

Q. Why did you do so?—A. Under Mr. Lumsden's ruling, assembled rock.

Q. What was assembled rock? Describe such assembled rock as you classed as a mass?—A. It would be large boulders cemented together, that required blasting to remove—continual blasting.

Q. When you say remove, do you mean to separate?—A. To separate.

Q. Do you mean, then, that a mass of boulders means boulders which are fastened together by cement?—A. Yes.

Q. Not which lie with loose material between them?—A. No.

Q. They must be broken apart?—A. As a rule they are drilled.

Q. If I could lift them up, they would adhere to each other?—A. Yes, if you could lift them up.

Q. So that you are taking cemented together in the elementary sense?—A. Yes.

Q. Did you class anything loose as masses which, in the elementary sense, were not cemented together?—A. No.

Q. I suppose you classified as loose rock all the large stones and boulders measuring more than one cubic foot and less than one cubic yard, and all loose rock, whether in situ or otherwise, that could be removed by hand, pick or bar; is that right?—A. Yes.

Q. So that we will eliminate that. Did you find any cemented gravel?—A. Yes, there was some.

Q. Does it occur in large or small quantities?—A. Very little of it on this district.

Q. Did you classify as loose rock any clay of any description?—A. Yes.

Q. Will you tell me what kind of clay you classified as loose rock?—A. Indurated clay.

Q. What is indurated clay?—A. Hardened clay.

Q. Did you classify any hardened clay as loose rock which, in your judgment, could be ploughed with a ten-inch grading plough, behind a team of six good horses properly handled?—A. No.

Q. What do you understand by "Ploughed by such a team and such a plough"?—A. It would have to be loosened.

Q. Describe to me what you mean by it?—A. After the plough had passed through the material it would require to be in better condition for removal by hand shovelling or scrapers than it was before being ploughed.

Q. Do you find any such statement in the specification?—A. Not under the heading of loose rock.

Q. Why do you inject that qualification into it?—A. Because under the heading of solid rock it says "May be best removed by blasting." That is a qualification of solid rock. I think it possible should have said "May be best removed by ploughing."

Q. I am not asking you to amend the specification; I am asking you to construe it?—A. That is the way I construed it.

Q. Do I understand you to say this material could be literally ploughed?—A. I think a great deal of it could possibly have had a plough dragged through it by six good horses.

Q. That is not what I asked you. I asked you if it could be literally ploughed by such a team?—A. What do you mean by literally?

Q. Well, if it could be ploughed; if you had been sent there to plough it—if you had been sent there with a team of six good horses and with a ten inch grading plough?—A. A lot of it could have been ploughed.

Q. Wait for the question; if you were simply told that some person wanted you, for curiosity, to plough that material, with that team and that plough, and, so far as you know, nothing else was going to be done with it, do you think you could have ploughed it?—A. Yes, a great portion of it.

Q. Then you have classified as loose rock material which, in your judgment, could be ploughed, if nothing else was going to be done with it after the ploughing?—A. Yes.

Q. Then why do you consider that it could not be ploughed within the meaning of this specification, if you do consider it could not be ploughed within the meaning of the specification?—A. Will you repeat that question?

Q. Do you consider that that clay could not be ploughed within the meaning of the specification?—A. Not in my judgment.

Q. Why do you consider so?—A. Because I consider that the meaning of ploughing is loosening the material and improving its condition for further handling.

Q. Why is it necessary to consider whether or not the ploughing will improve it for further handling?—A. There would be no object in ploughing it, if it did not.

Q. But they never did plough it?—A. On this district?

Q. Yes?—A. Oh, yes.

Q. Did the contractors plough it?—A. In several places.

Q. For what purpose?—A. To try and scrape it.

Q. With what result?—A. Practically no results.

Q. With what result?—A. They ploughed it and scraped it, but they did not do it commercially to advantage. It cost more than any other method that you could adopt.

Q. Then you have not looked upon the ploughing merely as a test. You look upon the ploughing spoken of in this specification as part of the method used for removing it?—A. Yes.

Q. Do contractors in this district use a plough for material which can be ploughed to advantage?—A. They would.

Q. But do they, for material which can be ploughed to advantage?—A. No, they do not. May I say why?

Q. Oh, certainly. I want your answers to be full and complete?—A. Because there is not enough of that material on the district to make it worth while bringing ploughs, scrapers and horses into the district. It costs too much to feed the horses, for one thing.

Q. Do I understand you that wherever material can be ploughed it is?—A. No, sir.

Q. Wherever material is susceptible of being ploughed, as you say commercially, and there are large enough quantities, do they use ploughing?—A. Not on this work.

Q. In any work?—A. Yes.

Q. Do I understand that you do not regard the ploughing spoken of in the specification as merely a test?—A. Not by itself, no.

Q. As merely a test?—A. Or as only a est; do you mean only or merley?

Q. Which ever you choose?—A. No.

Q. For example, if the specification had said that you should consider as common excavation such material as you could drive a rod with a sixteen pound hammer into, and you had taken a rod and tried it in this material, and found you could drive it with a sixteen pound hammer, would you put this in as common excavation?—A. I think so.

Q. So that you do not regard the ploughing as a test at all; you regard it as part of the method to be adopted in removing the soil?—A. I think so.

Q. Where did you see them use a plough to plough any of the clay which you classified as loose rock?—A. I did not see it.

Q. Where did you see any of the material which you classified as loose rock after it had been ploughed?—A. The ploughing I speak of was done before I took charge of the district.

Q. So that personally you have never seen a test of that kind made?—A. No.

Q. Have you ever seen anywhere clay which you classified as loose rock ploughed?—A. I do not think I ever saw clay like this anywhere else.

Q. So that you have never seen it ploughed?—A. No, apart from the surface clay.

Q. I am speaking of the clay that you classified as loose rock?—A. I do not think I ever saw anything like it anywhere else.

Q. So that, so far as you are concerned, this is your first experience of this clay which you have classified as loose rock?—A. This particular brand of clay, yes.

Q. Did you classify any soft clay on this contract as loose rock?—A. Yes.

Q. Where was that?—A. It was at about six or eight different points, one in particular was at Mustongo River.

Q. Were there large quantities of it?—A. From memory, about 20,000 yards in one cut.

Q. What would it total over the whole district?—A. From 40,000 to 50,000 yards about.

Q. How do you describe it?—A. As a rubbery, tough material when fairly dry, say in normal condition——

Q. Say when it was excavated?—A. In normal condition, towards the upper layers of it; as it went down it became very plastic. I think that fairly well describes the material.

Q. What color was it?—A. Greyish blue.

Q. How was it taken out?—A. In different ways, generally by hand.

Q. How was the hard clay which you classified as loose rock taken out? What instruments were used?—A. Picks, shovels and powder.

Q. Is there any part of it where powder was continuously used?—A. I will have to think about that; yes, I think so.

Q. Where?—A. In the cuts close to Cochrane, west of Cochrane, and at the west end—the work we went over yesterday.

Q. You mean the work referred to by Mr. McBey?—A. Yes, on his residency I have particularly in mind.

Q. You are referring to what he pointed out to us yesterday?—A. I was not with you when he pointed it out. I have a knowledge of that myself.

Q He was in charge of it?—A. He was Resident Engineer.

Q. And west of Cochrane you say there was some?—A. Immediately west of Cochrane four or five large cuts there.

Q. About how much would be in those cuts of that kind of material?—A. About 20,000 yards in each one.

Q. And there were in all about how many?—A. About four.

Q. Are they one after the other?—A. Yes.

Q. Starting where?—A. Almost in the town site of Cochrane.

Q. The rest of it did not need continuous blasting?—A. Not continuous.

Q. Where will I find recorded the information which will show me whether or not continuous blasting was used on any work in your district?—A. The Resident Engineers can furnish it.

Q. Is it recorded anywhere on the fyles of the Commission?—A. I think there is some correspondence about those four cuts I have mentioned close to Cochrane with Mr. Lumsden. I might say those cuts were taken out before I took the district. I have seen the correspondence and the Resident Engineer's record of powder consumed.

Q. You were here all the time?—A. Oh, no. This work was open for two years before I took charge of it. Mr. Macfarlane was in charge, and Mr. Poulin, who is dead.

Q. Did you take the cost of excavating to the contractor into consideration when making your classification?—A. Not to my knowledge.

Q. Why do you say it was more difficult and more expensive, if you do say so—and I understood you to?—Why do you put that forward at all as a reason for so classifying it?—A. That is in the soft material.

Q. In the hard material too?—A. The hard material I consider loose rock under this specification.

Q. And the soft material—did you take into consideration the expense there?—A. I think I must have.

Q. Where did you find in the specification anything to entitle you to classify soft material as loose rock?—A. I do not believe you can. May I look at it?

Q. Certainly? (Witness examines specification).—A. Probably the only reason was that it could not be ploughed, in my judgment.

Q. I am asking you, what was your judgment?—A. Well, that was it.

Q. Did you classify muskeg as loose rock?—A. No.

Q. Could it be ploughed?—A. No.

Q. But muskeg is not clay?—A. Muskeg is not clay.

By Mr. Gutelius:

Q. If you were to revise the profile, having in mind economy, could you reduce the quantities without increasing the maximums?—A. Yes, sir.

Q. Where and how?—A. By using a virtual four-tenths and six-tenths instead of the actual four-tenths and six-tenths that were used.

Q. What is the difference between an actual and a virtual grade?—A. An actual four-tenths grade never varies from four-tenths; I do not know whether I can make that clear; but is compensated for curvatures only. In using virtual four-tenths grade, the momentum of the train is allowed to carry it a certain distance up a grade of a greater rate than four-tenths. This distance is calculated; then the rate of grade is reduced to four-tenths again, or less, when the same process is gone through, and may be repeated indefinitely, to reach the summit.

Q. In other words, a locomotive will pull the same train over a virtual four-tenths that it would pull over an actual four-tenths grade?—A. Yes, barring accidents.

Q. By the introduction of virtual grades on your division, where would we look for reduction in cost of its construction?—A. At what points, do you mean, or in the schedule of classification?

Q. I want you to say in the fills?—A. In the fills by reducing yardage, and in the length of the culverts, making a saving of concrete.

Q. Would it have been possible to have reduced some of the cuttings by introducing virtual grades?—A. Yes.

Q. Did you give this subject any thought or study in connection with the location of the grade line over your division?—A. Not in this district; only on survey.

Q. As district engineer, why did you not take this matter up with the higher officers and recommend it?—A. It had been turned down by the higher authorities during the time I was on survey in 1905 or 1906, and I considered the matter had been dropped.

Q. What knowledge have you personally that the chief engineer, or the commission, refused to allow the use of virtual grades?—A. I think I must have had a letter to that effect.

Q. You do not know?—A. I do not remember now. The impression I have got is that I had, and that the matter was dropped then. Mr. MacPherson took it up first with us, or with the district engineer that I was under at that time.

By the Chairman:

Q. Would there have been any material saving if that policy had been adopted over your district?—A. I think the saving would have been quite large.

By Mr. Gutelius:

Q. Would you care to make a guess in a percentage way?—A. Perhaps 20 per cent. Is that too high?

Q. Well, say 15 to 20 per cent?—A. Yes.

Q. In passing over your division I have noticed that the sub grade on the level has been raised to what appears to be higher than was necessary to get over the muskeg, and in some cases grades introduced to get up on these higher banks; what defence is there for this practice?—A. I think that was a matter of policy, too

Q. Can you direct the Commission to the source of this policy you refer to?—A. I know nothing in writing on the point.

Q. What has given you the idea that it is policy?—A. A conversation with Mr. Woods, assistant chief engineer of the G.T.P., for one thing.

Q. Were any of your profiles amended raising the grades?—A. Yes, all of them.

Q. By whom?—A. By myself and by Mr. Macfarlane.

Q. After you had passed on them and sent them up for approval, were they amended, revised?—A. Sent to whom for approval?

Q. The chief engineer's office. First, have these profiles of yours been approved of by officers higher than the district engineers?—A. Yes.

Q. Who approved them?—A. The inspecting engineer, representing the chief engineer, Mr. Macfarlane.

Q. Did he revise any of your profiles?—A. Yes.

Q. Did he raise these grades?—A. Yes.

Q. He represented the chief engineer of the Commission in doing this?—A. I took him to be. He raised these grades in consultation with me. It was not an arbitrary raising of grades by him.

Q. Have you a written approval from him of these grades?—A. No, I think not; it was all done in my office, he and I together.

Q. He did not sign any of them after you completed them?—A. Not as inspecting engineer, no.

Q. Would it not have been advisable, in the interest of economy, to reduce the height of many of these raised embankments?—A. Do you mean, would it not have been advisable or would it be advisable now?

Q. Would it not have been advisable, in the interest of economy, to have reduced the heights of some of these embankments?—A. Yes.

Q. Would it amount to much of a saving in dollars?—A. Yes, the saving would be considerable.

Q. You are more familiar with this division than anyone else. Can you give me a guess, in percentage, as to what saving might be effected in this manner?—A. There might be one-sixth of the total district.

Q. That would be how many miles?—A. Say, 70 miles.

Q. At 5,000 yards to the mile, it would be 150,000 yards, and it will average 33 cents; it would be a third of that?—A. It will average more than that; it will average 50 cents.

Q. That would amount to $175,000, then?—A. Yes.

Q. This idea is not a new one?—A. No.

Q. Did you do anything yourself towards reaching this economy?—A. Yes, I have lowered grades and changed the rate of grades.

Q. And you propose now to make such further reduction as can be made, where those higher dumps have settled?—A. Yes, we propose to plot a new profile of existing top of earth levels, and put a new grade line on that.

Q. And save as much of this extravagance as possible?—A. Excess material.

Q. And save as much extravagance as you can, from now on?—A. Yes.

Q. You have been instructed to do that since we were on the work?—A. I have heard it talked of that we were to be instructed. I have not yet got the instructions. They will come from the chief engineer, I suppose.

Q. On the Algoma Central and the Rutland Railway momentum grades were used?—A. The Rutland Railway used a very low grade, which, I think, was six-tenths, compensated.

Q. Were sags within the gradient limits ruled out?—A. The use of sags was discouraged, what you would call a bag sag—two maximum grades meeting—

Q. Short sags?—A. Short sags were discouraged.

Q. But sags of half a mile in length would have been considered good construction?—A. Yes.

Q. There are fills on your division of a half a mile or greater in length where sags could have been introduced, are there not?—A. I think so.

Q. The policy, however, required that you build straight grades?—A. The policy was not to what I call chop a grade; it does not seem to have been.

Q. Were you ever given any data on which to figure whether a straight grade or a sag would be used in crossing long fills?—A. Yes, it was given us in a blue print form.

Q. Tell me about the Algoma Central on this point?—A. The Algoma Central used one and a half per cent grades uncompensated, and twelve degree curves.

Q. Why did you not use twelve degree curves on this railway?—A. I understood that six degrees was the maximum.

Q. How did you arrive at that understanding?—A. I think there were instructions to that effect.

Q. Do you know positive that there were?—A. I could not place my hand on the instructions now. I must have had it in some form or another from somebody or I would not have adhered to it. Six degree curves, by the way, were discouraged, too.

Q. Why did you not use one and a half per cent grades on this railroad?—A. The instructions were to use four-tenths eastbound and six-tenths westbound.

Q. From whom did you get these instructions?—A. Probably from the district engineer, when I was working as engineer in charge of location.

Q. Have you a copy of those instructions?—A. No, I think not, no.

Q. Will you try to locate a copy of instructions governing curvature and gradients, and send them to the Commission over your signature?—A. I will.

Q. Write a letter which we can attach to it?—A. Yes. If I cannot find them I will write a letter to you, anyway.

Q. What was the character of the structures on the Algoma Central?—A. Wooden trestles, cedar culverts, and, in a very few cases, cast-iron pipes.

Q. Why did you not use cedar culverts and wooden trestles on this railway?—A. I understood from the time I was resident engineer on District F. that temporary structures were not to be used.

Q. In the interest of economy, and in accordance with ordinary railway construction in Canada, would temporary structures have been advisable?—A. Yes.

Q. If permanent wooden trestles had been erected originally over the various sink holes on your division, would the sink holes which we have seen been prevented?—A. Certainly.

Q. Are there many of them?—A. Yes.

Q. How much money would have been saved at trestle 1,046?—A. 1,040 is the station.

Q. At 1,040, if a permanent wooden trestle had been constructed over that originally, how much would be saved? I think you said $150,000?—A. Probably $125,000.

Q. Were there many similar slides on your division?—A. Nothing so bad as 1,040 in the same distance; what I mean is short crossings.

Q. What percentage of saving could have been effected on your division if wooden permanent trestles had been constructed, the same as you were accustomed to on the Algoma Central? Just say roughly?—A. That is the percentage you ask for?

Q. Yes, in dollars, if you can remember what your bridges cost?—A. My impression is that it would have saved us perhaps a million dollars, but I am having information prepared which will give it exactly.

Q. Do you know what cement should cost in this country?—A. I have my own idea.

Q. What should cement concrete cost in this country per cubic yard?—A. I think it could be put in place at an actual cost of about $8 or $10 a yard.

Q. The prices paid to general contractors, however, are what?—A. From $10.50 to $16 for the mixture that is most used; that is 1-3-6.

Q. That is what you refer to as being put in place for from $8 to $10?—A. Yes.

Q. Referring to loose rock specification under classification, you have told us that you construed the reference to ploughing as being a method to be adopted in excavation?—A. Yes.

Q. The same as in paragraph 34, under solid rock, which says, "May best be removed by blasting"?—A. Yes.

Q. Then you read into the loose rock clause, "May best be removed by ploughing"?—A. My idea is that if that word "best" were there, it would explain that clause better.

Q. And that it would make clear what was intended?—A. Yes.

Q. That is, to make clear what you, in your interpretation, would suggest adding to this clause: "May best be removed by ploughing"?—A. If ploughing is kept in as a test, yes.

Q. Then, to arrive at your conclusion, it was necessary for you to assume something that was not actually printed in this specification?—A. Not actually printed, yes.

Q. It is a fact, then, that you did not take into consideration as a test only?—A. Yes; that is my judgment of the specification, and I consider it is left to my judgment.

Copy.

The Commissioners of the
Transcontinental Railway.

Ottawa, June 12th, 1912.
File 12,028.

F. P. GUTELIUS, ESQ.,
Investigating Commission.

Dear Sir:—

Yours of the 8th inst., re height of subgrade above the muskeg on District "D".

I have been unable to find any letters between myself and Mr. Woods, or between my predecessor and Mr. Woods, with reference to the raising of grades on District "D".

My recollection is that so far as I am personally concerned, there were verbal requests only.

Yours truly,
(Signed) GORDON GRANT,
Chief Engineer.

Copy.

West of Cochrane, June 8th, 1912.

GORDON GRANT, ESQ.,
Chief Engineer, N.T.Ry.,

Ottawa.

Dear Sir:—

In connection with the height of subgrade above muskeg on District "D". Your recollection was that it was at request of the G.T.P. through Mr. Woods. Will you kindly let me see any correspondence you may have in connection therewith.

Yours truly,

Copy.

COCHRANE, June 14th, 1912.

GORDON GRANT, Esq.,
Chief Engineer,

Ottawa, Ont.

DEAR SIR:—

During my examination by the Investigating Commission I was asked to look up and send to them my authority for the use of maximum grades of 0.4 per cent eastbound and 0.6 per cent westbound, also for the use of 6° curves as the maximum curvature.

The instructions regarding curvature are found on P. 38, Art. 26 of the book of Instructions, and those regarding grades are found on P. 45 (at the top) of the same book.

I will be glad if you will transmit this information to the Commission.

Yours truly,

(Sgd.) G. L. MATTICE,
Assistant District Engineer.
"C.D."

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION
OTTAWA, OCTOBER 25th, 1912.)

Present: G. LYNCH-STAUNTON, K.C., *Chairman.*

G. L. MATTICE, Assistant District Engineer, National Transcontinental Railway, examined:

By the Chairman:

Q. You are the assistant district engineer in district D?—A. Yes.

Q. And you have already given evidence to the commission at Cochrane?—A. Yes.

Q. Do you know Mr. Goodwin?—A. Yes.

Q. He is inspecting engineer of the Transcontinental Railway?—A. Yes.

Q. Did he pay a visit to Cochrane, lately?—A. Yes.

Q. When did he arrive there and when did he leave?—A. I can tell you when he left. I do not remember the day he arrived. He was there between September 18th and October 20th.

Q. Were you with him all the time he was there?—A. Just during the time he was out on the line.

Q. Do you recollect when he went out on the line?—A. We started from Cochrane on the 23rd of September, going east.

Q. And you went east how far?—A. We went east 158 miles, that day.

Q. Who are "we"?—A. Mr. Goodwin, Mr. Balkam, district engineer, and myself.

Q. Will you tell me the reason for that trip and what you did on it?—A. The trip was for Mr. Goodwin to inspect the classification.

Q. What was done on that trip; start at the beginning and tell me in your own words what was done on that trip?—A. The first day we ran 158 miles and slept at one of our Residency camps that day. It was the camp of Division Engineer Sunstrum, Residency No. 11. We did nothing but travel that day.

Q. On whose contract is that?—A. Contract 15; Macdonell & O'Brien. That is sublet to O'Brien & Martin who are doing the work.

Q. The next day, September 24th, did you do anything?—A. We went on the motor car to the end of steel and walked from the end of track to Belle River, beyond the end of steel, and we stayed at Residency No. 8 that night. We examined nothing that day. We were travelling to the end of the work to start back.

Q. Was there any work done or any information acquired by Mr. Goodwin before he left Cochrane?—A. Yes, we had all the classification notes copied out on sheets, each Residency by itself, ready for him to carry with him.

Q. He took with him the information necessary to familiarize himself with the classification that had been done over the ground he was about to inspect?—A. Yes sir.

Q. And that was furnished by you or by Mr. Balkam?—A. Both of us, by the office.

Q. We come now to the 25th of September, what was done on that day?—A. We started at Belle River and examined the classification through to practically the end of the grading.

Q. That is still going east?—A. Going east.

Q. Did you make any notes of what was done on that day that you have with you?—A. I noted in my diary that we started. I think we all took notes on the sheets.

Q. Can you give me any information about what you did that day?—A. I think the only thing we did was to raise the classification in one cut.

Q. You examined all the classification for about what distance?—A. About seven miles.

Q. Did you make any changes or pass any opinion on the classification in that district?—A. Just at one spot.

Q. The cut you are speaking of, is the cut between stations 835 and 839?—A. Yes, sir.

Q. Tell me what you did there?—A. We looked over the cut, got a pick and shovel, and Mr. Goodwin got a pick and shovel, and we talked to the resident and division engineer who saw the work done.

Q. Who is the division engineer?—A. Sunstrum.

Q. And who is the resident engineer?—A. Howe.

Q. What did you do?—A. After consultation, we considered it should be changed. The cut was originally classified "83 cubic yards solid rock, 653 cubic yards loose rock, and 1303 cubic yards common excavation." We decided that the mixed material should be classified about 65 per cent loose rock, and Mr. Balkam on returning to camp, instructed the resident engineer accordingly.

Q. What change did that make in the classification?—A. Apart from the solid rock excavation, the loose rock and common excavation were about reversed.

Q. Did you do anything more that day?—A. No, we came back to the camp and stayed the rest of the day there.

Q. Next day did you make any more inspection?—A. Next day, the 26th of September, it rained all morning and we walked back to Belle River Residence in the afternoon and inspected about half a mile west of Belle River and stayed in camp.

Q. Did you make any changes in that half mile?—A. No.

Q. On the 27th of September, what did you do?—A. We started where we stopped the day before at the half mile west of the Belle River and walked to the end, Clear Creek, beyond the end of steel. We practically walked to Residency No. 9, about twelve miles west of Belle River; that was just in the morning.

Q. In the afternoon, what did you do?—A. We continued with the motor car to Residency No. 11.

Q. Did you make any changes in the classification on that twelve miles?—A. No.

Q. Did you do anything more that day?—A. No.

Q. On the 28th of September what did you do?—A. We left Residency No. 11 and went over the track in the motor car and ran forty-five miles west to Robertson Lake.

Q. Did you investigate the classification on that forty-five miles?—A. One cut at mile 113¾. Mr. Goodwin got a pick and shovel and dug some small holes in the side of the track. That is the first cut west of Peter Brown Creek.

Q. Did he make any changes in the classification there?—A. No.

Q. Whose contract was that on?—A. That was on contract No. 14, the Grand Trunk Pacific contract.

Q. Who is doing that work?—A. Foley, Walsh & Stewart, agents of the Grand Trunk Pacific.

Q. What else happened?—A. At two or three other points Mr. Goodwin did the same thing; we carried the tools with us.

Q. Were any changes made?—A. No sir.

Q. Did you continue along the railway next day?—A. The next day was Sunday. We stayed at Robertson Lake. Residency No. 15.

Q. What happened on Monday, the thirtieth of September?—A. We ran from Robertson's Lake to the Quebec boundary, approximately forty-one miles.

Q. Did you make any inspection on the way?—A. No particular inspection that I remember now. We watched the cuts as we went along, and Mr. Goodwin

made notes of the class of material, whether clay or sand or rock, but did not make any excavations.

Q. You slept that night where?—A. South River, Residency No. 17.

Q. On Tuesday morning what did you do?—A. We ran from the Quebec boundary to Cochrane, about seventy-two miles.

Q. Did Mr. Goodwin make any excavation along the road?—A. Yes, in one or two places.

Q. Did you make any changes in the classification?—A. No.

Q. You got back to Cochrane that night?—A. Yes.

Q. After you got back to Cochrane did you do anything further?—A. Not that day.

Q. The next day what did Mr. Goodwin do?—A. We were in Cochrane all day Wednesday, and Mr. Goodwin said he made arrangements to do some work the following day.

Q. What was done on Thursday, the 3rd of October?—A. On Thursday, we were in Cochrane all day, and Mr. Goodwin started his teams working at a cut on contract No. 14.

Q. What did the teams do that day?—A. Grubbing the stumps off the surface preparatory to making a plough test.

Q. Where was that?—A. That was on the Cochrane yard cutting.

Q. On the south side of the Cochrane yard cutting?—A. On the south side, on the Temiskaming & Northern Ontario property.

Q. What mile was that?—A. About mile 103 1-4.

Q. How far south was that from the edge of the old cutting?—A. About forty feet.

Q. And north of it is the Transcontinental line and south of it is the T. & N. O. railway?—A. Yes.

Q. It is between the two cuttings?—A. Yes.

Q. Were there trees on it?—A. No.

Q. It was a cleared piece of land covered with stumps?—A. Yes.

Q. And you got ready that day to plough it?—A. Yes.

Q. Was it ready to plough for Friday?—A. We went away on Friday, we went west with the motor car. We travelled seventy miles, going through the same procedure as the previous days, taking notes of the material in the different cuts and burrows.

Q. Did you make any changes in the classification?—A. No.

Q. It was merely an inspection trip?—A. That is all.

Q. What did you do then?—A. We slept at Residency No. 17 that night and we returned on Saturday to Cochrane.

Q. Then on Sunday, I suppose you did nothing?—A. No.

Q. What did you do on Monday?—A. On Monday morning we started west. We started west in the morning and ran through to Hearst, one hundred and thirty miles.

Q. In the meantime, had any ploughing been done?—A. They were ploughing all day Saturday.

Q. Did you see the work on Sunday or Monday?—A. I saw it Saturday afternoon.

Q. Tell me what you saw?—A. I think there were one or two teams ploughing material.

Q. Were they two horse or four horse teams?—A. Two horses and a plough.

Q. What were they ploughing with?—A. A grading plough.

Q. How much ploughing had been done when you saw it?—A. I think about a foot and a half in depth that day.

Q. From what you saw, can you tell me to what depth the plough went into the soil on the surface?—A. I did not see that.

Q. Describe the condition of the earth that was ploughed when you saw it?—A. It was clay.

Q. Was it ploughed?—A. Yes.

Q. Ploughed as you would see a field ploughed?—A. Yes.

Q. It was genuine ploughing?—A. Yes.

Q. How much had they done?—A. They ploughed about a foot and a half in depth.

Q. Had they done a day's work?—A. Do you mean what a farmer would consider a day's work?

Q. Yes?—A. I do not know about that.

Q. They set out to plough out an area of about how much?—A. About 100 feet long and 20 feet wide.

Q. Had they ploughed the whole surface when you saw it Saturday afternoon?—A. Practically all of it.

Q. Had they removed any of the material?—A. Yes.

Q. How was it removed?—A. With a scraper.

Q. How many horses on the scraper?—A. Two horses.

Q. Before ploughing the surface was grubbed?—A. Yes.

Q. After they grubbed it they put the plough on it?—A. Yes.

Q. After they ploughed it they put the scraper on it and removed the ploughed material?—A. Yes.

Q. Did they do anything else besides ploughing it and scraping it to remove it?—A. **No.**

Q. When they took the surface off, what next did they do? Did they plough it over again?—A. Yes.

Q. They took another lift off it with the plough?—A. Yes.

Q. Did you see that ploughing done?—A. I might have been there for ten or fifteen minutes.

Q. Was it apparently easy or hard ploughing?—A. Easy ploughing.

Q. They turned over the second lift then?—A. Yes, if you may call it a lift.

Q. Was that removed by the scraper?—A. Yes.

Q. Without any outside assistance?—A. Yes.

Q. Did they take another lift off, did they take a third lift off?—A. I did not stay there.

Q. Anyway, they ploughed the whole area to what depth?—A. On on average about four and a half or five feet. The deepest place is about six and a half feet.

Q. You are now looking at the cross-section?—A. Yes.

Q. Is that cross-section correct?—A. As far as I know, yes.

Q. You have no reason to think it is not correct?—A. No.

Q. It is certified by one of your resident engineers?—A. Yes, and by Mr. Goodwin.

Q. What was the material in this cut?—A. Clay.

Q. Was it clay to the bottom?—A. I think he stopped at sand. he struck sand in the bottom.

Q. That is where he stopped?—A. Yes.

Q. What was the sand like?—A. Very fine white sand.

Q. That completed all the tests that was made in that cut?—A. Yes.

Q. What else was done?—A. We are now up to Sunday, the 6th of October, that test was in progress all through the next week; we were away.

Q. Have you described to me everything that was done in that cut?—A. No.

Q. What else was done?—A. Some of that material in that particular spot was scraped without being ploughed.

Q. Tell me what portion of it?—A. About a foot and a half. The plough was away up in the other cut, and we scraped it out without going after the plough.

Q. So that part of the cut was taken out without the assistance of a plough?—A. About eighteen inches of it.

Q. Was that taken out at once; to what depth would the scraper go?—A. In thin layers of two or three inches.

Q. Can you tell me anything more about that cut?—A. No; I do not think so.

Q. That was all the work that was done there?—A. Yes.

Q. You and Mr. Balkam were away during most of the time this was being taken out? Inspecting along the line with Mr. Goodwin—A. Yes.

Q. Continue your account of your trip?—A. We made a similar inspection west of Cochrane as far as the end of the district, 200 miles, as we did east of Cochrane, and it took us from Monday until Friday to do that, five days.

Q. Did Mr. Goodwin make any other plough tests?—A. Yes.

Q. Where?—A. The first cut was west of Cochrane, on contract No. 15, mile 104.

Q. About what area did he have ploughed there?—A. The cross-section shows about 50 feet by 15 feet.

Q. How far was that from the edge of the cutting on the railway?—A. I did not see this place.

Q. Do you know the place?—A. Oh, yes.

Q. Is the clay there similar to the clay in the cut you have already described?—A. Not quite.

Q. Has any clay, like the clay in the cut you have already described, been classified as loose rock?—A. Yes.

Q. Is the clay in the cut you have first described, similar to the clay throughout the district?—A. It is the same physical formation.

Q. Is it in the same condition?—A. No.

Q. In what does this differ at the present time from the condition in which it was when the right of way was cleared and the work was commenced?—A. The clay is in a much drier state.

Q. Is it harder or softer?—A. It is the same consistency, but it is dry and brittle instead of being sticky.

Q. What has caused the difference?—A. Clearing the land for four years and draining it with the cuts on each side of it.

Q. In what condition was the clay in the cuts made by Mr. Goodwin, that you have first described?—A. Nice friable, dry material

Q. Was it dry down to all that depth?—A. Yes.

Q. Was the cut alongside of Mr. Goodwin's test cut classified as loose rock?—A. Yes.

Q. Did Mr. Goodwin make any tests other than those you have spoken of on the inspection, and at Station 835?—A. Yes; these two plough tests at Mile 103 (Station 428) and Mile 104, that is 103 miles east of Cochrane and 104 miles west of Cochrane.

Q. The next plough test is at Mile 104 (Station 500) and that is west of Cochrane?—A. Yes.

Q. Mr. Goodwin said he had a plough test made alongside the cut at Station 482-503, and ploughed with two horses and a grading plough to a depth of about five feet, is that correct?—A. I believe so; I did not see it.

Q. You did not see the cut all?—A. Not when he was ploughing it.

Q. Did you see it afterwards?—A. No, sir.

Q. He did not make any other plough test that you know of?—A. No.

Q. In his report he says, to summarize it, that he examined the classification of contracts No. 13, No. 14, No. 15, and No. 16 in District D?—A. He did.

Q. He says that on contract No. 13, Macdonell & O'Brien, contractors on that portion of contract No. 13, which is in District D, all clay, muskeg, sand, and loam, is classified as common excavation?—A. Yes.

Q. And he says that mixed clay and boulders are classified, a certain percentage of loose rock according to the amount of boulders, and that no assembled rock has been returned on this portion of the contract?—A. That is correct.

Q. He says that on contract No. 14, the Grand Trunk Pacific Railway Company contractors, with the exception of some work done during 1908, practically all the clay on this contract was classified as loose rock, and that muskeg, sand and loam only, were returned as common excavation. Is that correct?—A. Yes.

Q. Listen to the way he classified it. He says: the clay on this contract can be divided into four classes—first, clay which can be ploughed with two or four horses and which, when ploughed, breaks up into such a way as to make it good shovelling or scraping?—A. That is his opinion.

Q. He does not say what quantity, but he says there was some clay of that kind?—A. Yes, that is right.

Q. Do you agree with that?—A. No, sir.

Q. As I say, he does not give the quantity, but he says there was some of that kind?—A. Oh, that is perfectly right.

Q. Then he says: second, clay that can be ploughed, but is either too tough or too soft for the ploughing to be any use as a means of handling. In some cases this clay is too soft and sticky to allow horses to be used on it, and in other cases it is so tough that though it could be ploughed, it would still have to be cut with shovels before it could be removed. Do you agree with that?—A. There is such material.

Q. In the third place he says there is a quicksand clay which can be ploughed, but which runs together almost immediately. This clay runs together so that it invariably has to be shovelled out of the cars or carts. Do you agree with that?—A. Yes.

Q. In the fourth place he says mixed clay and gravel; some of this class should be included in class No. 1, that is, clay which can be ploughed with two or four horses and which, when ploughed, breaks up into such a way as to make it good shovelling or scraping, as it can easily be ploughed and scraped or ploughed and shovelled, while a proportion would contain too much stone to allow it to be ploughed?—A. Yes; there is some of that.

Q. He next speaks of the cut at Station 54-58, Residency 9, will you tell me where that is?—A. Near the Abitibi River.

Q. He says it is a cut at Residency 9 and was mostly taken out in 1908 and 1909 with ploughs and scrapers, the scrapers loading through a trap into cars. Is that right?—A. I do not know anything about it. I was not there. It was before my time. I have no doubt it is true, because he was there. He was resident engineer, I think, at that time.

Q. Do you remember the place?—A. I know the place.

Q. Can you describe what the cut consists of?—A. It is a clay cut with boulders.

Q. Do you know the west end of the cut at Station 1063-1084, Mile 75?—A. I know that cut, it is Residency No. 7.

Q. He says it was taken out with a plough and grading machine in 1908, do you know anything of that?—A. No, sir. The grading machine is there, so, I guess, that is right.

Q. He says the material was clay and could come under Division No. 1, do you agree it was clay?—A. It was clay, yes, with sand in the bottom. We borrowed in that cut afterwards.

Q. Yes, he says the east end was sand and was used for borrows?—A. Yes, but I would not say it was the east end. The borrow started in the west end of the cut and went through right to the east end. I think he means the west end there. It is more the centre of the cut really.

Q. He next refers to the cut at Station 2165-2175, Mile 54, do you know that?—A. I do not remember that particular cut, but I know the general country there. It is all a clay country.

Q. He says: I understand from Division Engineer O'Leary that the first two feet of this cut was good scraper work, while the second two feet was only fair, and the balance tough clay, which I judge would come under Division No. 2. He says the cut was ploughed to a depth of six feet, that it was classified as 10,240 cubic yards loose rock, and 960 common excavation, do you know anything about that?—A. I do not remember that particular spot now.

Q. Then he says: I would judge that these cuts are typical of the whole contract, what do you say as to that?—A. I think at the time the classification was made, that every cut was considered by itself.

Q. But would you say they were typical cuts?—A. I cannot say that they were.

Q. You would not like to express an opinion on it now, at this date?—A. No, there is a similarity in all that country.

Q. He then says: Contract No. 15, E. F. and G. E. Fauquier, Contractors, the clay on this contract is very similar to that on Contract No. 14, except that perhaps there is a larger quantity of mixed clay and gravel, do you agree with that?—A. Yes, I think that is right.

Q. He says: On Contract 16, O'Brien and Macdougall, and O'Gorman, the material on this contract is very similar to that on Contracts Nos. 14 and 15; I would judge that the classification on this contract is not as high as on the other contracts. What do you say as to that, is that your opinion?—A. The material up there is a different material, it is more of a hardpan material.

Q. That is on O'Brien, Macdougall and O'Gorman's contract?—A. Yes. I speak now of the average.

Q. Would you expect it to be classified higher than the other?—A. The idea was to have it as uniform as possible.

Q. Would you expect from your knowledge of material in the two contracts that O'Brien, Macdougall and O'Gorman's contract would be classified higher than the other contracts, than No. 14 and No. 15?—A. No, I would not.

The witness was not further examined.

(N. T. R. INVESTIGATING COMMISSION: EVIDENCE TAKEN ON TRAIN AT BOUNDARY BETWEEN ONTARIO AND QUEBEC, JUNE 20th, 1912.)

HORACE LONGLEY, sworn:

By the Chairman:

Q. You are a civil engineer?—A. Yes.

Q. Had you any experience before you became connected with this road?—A. I was with Mackenzie and Mann in Nova Scotia for five years.

Q. On construction work?—A. I was resident engineer on two residencies.

Q. On construction?—A. Yes.

Q. And then you came on the Transcontinental?—A. I was their office engineer at Bridgewater, N.S., and then I came to the Transcontinental.

Q. What have you been employed at on the N.T.R.?—A. First of all, in 1905, until construction began in 1907, I was engineer in charge of a party on preliminary location.

Q. And since 1907, what have you been engaged at?—A. From 1907 to 1908 I was divisional engineer at Edmundston, and then in 1908 I was appointed assistant district engineer.

Q. Over what district?—A. I do not know.

Q. With Mr. Foss?—A. Yes.

Q. And you hold that office now?—A. Yes. There were two of us at first, you know.

Q. You were one of them?—A. Yes.

Q. You have gone over the road from Moncton to the Quebec line with Mr. Foss and the Commission in the last few days?—A. Yes.

Q. And you have been present to-night, and heard the evidence given Mr. Foss?—A. Yes.

Q. I do not wish to take you all over that evidence, but I would like to ask you whether or not you agree with the evidence given by Mr. Foss, and, if you do not, in what particulars do you disagree?—A. Well, anything on which I disagree with him is very trifling detail. There is only one thing that is in my mind at present. There were little things, but they do not affect the matter generally. I think that instruction about curves was two thousand feet instead of one. That is just in my mind now, but there were other little points which do not amount to anything. Substantially, I agree with what Mr. Foss says.

(N.T.R. INVESTIGATING COMMISSION: EVIDENCE TAKEN AT N.T.R. OFFICES AT QUEBEC, AUG. 20th, 1912.

J. W. PORTER, sworn:

Q. How old are you?—A. Thirty-four.

Q. Where were you educated?—A. Aberdeen, Scotland, Gordon's College.

Q. What engineering experience did you have before you came to this country, and what year did you come?—A. I served a pupilage of five years articled to the chief engineer in charge of the Great North of Scotland Railway. I was a year assistant to him, general assistant in the office, and I came to this country in 1902.

Q. What was your first engineering employment in this country; give me a short record of it, until you were employed on the N.T.R.?—A. I got a position from Mr. Tye, then chief engineer of construction for the C.P.R., as draughtsman in the office. I was there for nine months, doing general office work, and at the end of nine months I was sent out to Winnipeg, on the Winnipeg-Fort William double tracking. I was there five months as draughtsman, and afterwards I was leveller for two weeks, I think, and then I was transitman up till about October of that next year; that is October, 1903. Then I was on the Toronto Sudbury as transitman on preliminary survey work under Mr. Killally. I was there for a year and a half, and then I went over to the Walkerton & Lucknow, as assistant on location. Two parties were bunched together to locate that Walkerton line. Then I came back to the Toronto Sudbury as resident on residency 5.

Q. What stations were on that line?—A. Black, Midhurst, Utopia. I finished up that residency in about a year or nine months, and I was made responsible engineer of contract work for the erection of timber trestles, etc. I laid track up to Parry Sound in the capacity of resident engineer on track work, and afterwards I went over to the Georgian Bay and Seaboard branch, and opened up construction there as assistant engineer.

Q. As assistant engineer you had charge of how many residencies?—A. There was just one there, from Coldwater up. I was there for two months, and then I came back to the Toronto-Sudbury on fifty miles, where the ballasting, etc., was not completed, and the stations, tracks, etc., had to be built, and so forth.

Q. And you practically finished up that road?—A. I had charge till it was turned over for operation in the year 1909, and after that I took six months' holiday, after seven years' work, and I went home. After returning, I went with Mr. Grant on the Transcontinental.

Q. So you had seven and a half years' actual experience on the C. P. R. in Eastern Canada, east of Winnipeg?—A. Yes.

Q. And after those holidays, you took employment on the N.T.R., in what position?—A. Mr. Grant wired me he had a position for me, and I went up to see him, and he sent me down in the capacity of remeasuring work on District B

Q. And reclassification?—A. No, just remeasurement.

Q. And after that remeasurement work was completed you did what?—A. I was made divisional engineer after Mr. Bourgois left. The division was extended and ran from mile 92 to mile 150 at that time.

Q. West of the Quebec Bridge?—A. Yes.

Q. On our recent inspection of your division a great deal of discussion occurred in connection with a sub classification known as assembled rock?—A. Yes.

Q. We opened up the sides of cutting at mileage 120.9 and 162.3 for examination, and I asked you to examine the material found in these openings, with the idea of securing from you your opinion as to how that material should be classified. What were your conclusions?—A. My conclusions were that it did not come under the impression that I have in my mind of cementing material between the rock. My idea of measuring that would be to measure the rock and return it as solid rock at mile 120, which you were speaking about just now, and the balance as loose rock. At mileage 120.9 I think the cut was about three times as hard and contained a great deal of rock. I did not think the material in between really was sufficiently hard to be called cemented: too much sand in it. I would have returned it the same way.

Q. So that both of those cuttings, in your judgment, should have been returned as loose rock, and all the solid rock that was in it?—A. Yes.

Q. Did you approve, as divisional engineer, of such classification as this which we have just spoken of as assembled rock, for solid rock prices?—A. I did not do any classifying, and I do not think I would call that assembled rock exactly.

Q. You do not think you called any material similar to that solid rock in any of your returns?—A. No, not all solid rock. What I mean is that at that cut mile 120.9, it seemed to me full of rock, and a certain percentage of solid rock, but I would not call it all solid rock.

Q. What I am after is, does this judgment which you have given me on these cuts coincide with the classification which you have given of the cuts on your own division?—A. I never classified any yet. I have never done any classification on the line at all. I was not there when the work was opened up, and consequently I did not have an opportunity of exercising that judgment.

Q. I should like to have you make some comparisons between the character of this railway and its method of construction, as compared with your experience on the Toronto Sudbury line of the C. P. R. That work was in progress at the same time that this work was proceeding?—A. Yes.

Q. How did the character of country south of Bala compare with the character of country covered by your division here?—A. It did not compare at all; different proposition altogether.

Q. Different kind of material?—A. Different kind of geological formation.

Q. There were deep cuttings?—A. Yes.

Q. And some deep ravines to be crossed?—A. Yes, exactly.

Q. How were the deep ravines on the Toronto Sudbury line crossed? A. Crossed by square timber trestles known as permanent trestles. We had some 35 of them on the Toronto Sudbury in 226 miles, varying from 15,000 feet board measure to 750,000 feet—three quarters of a mile.

Q. The only steel structures that were erected on that line were built where?—A. Over running streams, and just like Parry Sound, a town crossing, and crossing the G.T.R., and places like that.

Q. I would take it, then, that trestles were constructed at all points crossing fill over 20 to 30 feet in height, where there was not sufficient material in the adjoining cuttings to make the fill?—A. Trestles were erected, exactly.

Q. Did you have any experience on the Toronto Sudbury line with solid rock borrow?—A. None, sir.

Q. In the location of these trestles was there any hard and fast rule against locating them on curves?—A. None, sir. There were several of them on curves, some of them on four degree curves.

Q. It was a common thing to construct trestles on curves?—A. Yes.

Q. Do you recall any steel bridge located on curves?—A. I cannot recall any steel bridges located on curves.

Q. Reverting to wood trestles, were those trestles constructed in a country that was covered with forest trees?—A. No.

Q. No forest country around the Toronto Sudbury line?—A. In the north end there was pine limits.

Q. What I desire is, was the question of combustible material in the vicinity of a proposed trestle of any import as to whether a trestle should be built at that point?—A. No.

Q. What did they do to protect these trestles from fire from adjoining timberland or bush?—A. Sometimes they put a watchman there, and standard water barrels on a trestle, and they cleared a piece on each side, and took all the scrub and slash away, so that there would be no chance of fire to run, and sometimes covered the stumps with sand.

Q. And that special clearing extended far enough from the trestle so that you engineers believed that the bridge would be safe from a forest fire?—A. Yes.

Q. That was really the condition, was it not?—A. Yes.

By The Chairman:

Q. It is a wild, unsettled country from Sudbury down to where?—A. Down as far as Severn River, except for a small piece in between at Parry Sound; that is fully half the line, you might say, is settled.

Q. You were telling Mr. Gutelius it was not a forest country; you meant a timberland; you do not mean it was a settled country?—A. No.

By Mr. Gutelius:

Q. Was the Toronto Sudbury division as high a class of railway in the matter of grades and curvature as the N.T.R.?—A. It was a higher class.

Q. What do you mean by that?—A. I mean to say that the maximum grade, the ruling grade, was three-tenths, and here it is four-tenths. The maximum grade in both directions was a virtual three-tenths.

Q. What do you mean by a virtual grade?—A. A virtual three-tenths means a grade over which a train of three-tenths tonnage can be hauled.

Q. What is the difference between a virtual and an actual grade?—An actual grade is one in which the grade is uniform, with curvature compensated. A virtual grade is one in which sags or momentum grades are introduced, whereby the actual rate of grade is increased.

Q. Is it possible for a locomotive to haul the same weight of train over a virtual three-tenths that it would haul over an actual three-tenths?—A. Yes.

Q. What is the object of introducing virtual grades?—A. The sole object of the introduction of virtual grades is economy in construction.

Q. Were the economies in the matter of virtual grades, which include momentum grades and sags, practised on the N.T.R.?—A. No, sir, not that I know of.

Q. Would it be possible for the engineers on the N.T.R. to estimate now the saving which might have been effected had virtual grades been used?—A. I think it probably would.

Q. They could, except where the location would have been influenced by the proposal to utilize these sags and momentum grades?—A. Exactly, yes.

Q. So that it would not be possible for us to arrive at a definite figure as to the saving that might have been effected?—A. No.

Q. So that momentum grade information or instructions should have been given to the locating engineers in order to have taken advantage of this economy?—A. Yes.

Q. Were the original instructions such as would have permitted the use of momentum grades and sags?—A. They were not.

Q. You were given hard and fast instructions to build actual grades?—A. Yes.

Q. Reverting to timber trestles, is it possible for us to-day to figure the economies that might have been effected had timber trestles been constructed originally?—A. I think it is.

Q. I understand you are working on such information for this commission now?—A. Yes.

Q. In the matter of curvature, I understand your instructions were (Reading from general instructions to Civil Engineers, signed by Mr. Lumsden)—"The maximum curve on a level shall not exceed six degrees. This curve should be used sparingly, and only when the topographical conditions prohibit an easier radius. At depots or stopping places curves exceeding three degrees should not be used. Curves less than 300 feet long are objectionable and should not be used. Reversed curves must not be used under any circumstances. At least 600 feet between transition curves must be had. Broken back curves must not be used. The minimum tangent between curves in the same direction shall be 600 feet clear of transition curves"?—A. Yes, that is so.

Q. How do these instructions compare with those under which you worked on other railways?—A. Rather more rigid, or confined the locating engineers more than on other railroads.

Q. Were you given a maximum degree of curve without any latitude on any other railway that you have ever worked on?—A. Yes.

Q. What was your maximum?—A. Four degree curves. It was departed from in one case.

Q. So that there are six degree curves on the Toronto Sudbury?—A. One.

Q. Was there any limitation as to the length of curve on the Toronto Sudbury?—A. No.

Q. Were the curves on the Toronto Sudbury spiral?—A. Yes.

Q. Was there any objection to reversing spiral curves?—A. I do not think so.

Q. Was there any instruction against compounding curves?—A. By no means. There were numerous compound curves used on the Toronto Sudbury.

Q. In your experience as an engineer, do you see any advantage in limiting the length of tangents between curves that are spiral?—A. I do not.

Q. So that you would feel that any additional money expended for tangents between spiral curves would be wasted?—A. I would.

Q. From your knowledge of your division, could any large saving have been effected if the limit in degree of curves had been extended to eight degrees?—A. Yes, it could have been.

Q. Would it be good railroading to introduce eight degree curves where large saving could be effected, even though it would be expected that, under heavy traffic, that curvature might, at some later date, be reduced?—A. I think it would be practical railroading to do so.

Q. What is a pusher grade for a four-tenths, assuming that the pusher locomotive is of the same power as the locomotive pulling the train?—A. It is 1.12 per cent.

Q. What is the rate for a pusher grade in a six-tenths line, using the same size of engine for pusher as that hauling the train?—A. 1.47.

Q. If a lesser gradient was used, such as I understand is the fact west of the St. Francis River, and it cost more money where the rate of gradient was 1.1 than a 1.47 grade would have cost, that additional expenditure was unnecessary?—A. It was.

(N. T. R. INVESTIGATING COMMISSION, EVIDENCE TAKEN AT OTTAWA, IN THE COMMISSION OFFICE, OCT. 17th, 1912.)

CHILION LONGLEY HERVEY, sworn:

By the Chairman:

Q. You are an engineer by profession?—A. Yes.

Q. And are now a contractor on the National Transcontinental?—A. Yes.

Q. Where?—A. I have a small section of work away up above La Tuque, up beyond where the end of steel is at present, and I have some work in New Brunswick, not on the Transcontinental though.

Q. Were you in the employ of the Transcontinental at one time?—A. Yes.

Q. When did you enter their employment?—A. I think it was 1905; I won't be exact about that.

Q. In what capacity?—A. As assistant to chief of party.

Q. On an exploration party?—A. On a survey location. They had assistant chiefs of party then, as they called them.

Q. After you finished on that job what did you go to next?—A. They transferred me from New Brunswick up to Lake Abitibi, on the surveys there, and then into District C, and then into District B, and then on the Quebec Bridge Terminals, and then back up on to District A, down where Mr. Foss was, and then back again up to District B.

Q. You were finally at District B?—A. Yes, that is where I was when I left the road.

Q. What were you at District B when you left the road?—A. Assistant district engineer.

Q. To Mr. Doucet?—A. Yes.

Q. I want to ask you about this Ludger Noel arch?—A. Yes.

Q. The Ludger Noel arch is situated where?—A. If I remember right, it was about mile 141 west of Quebec.

Q. And it spans a stream?—A. Yes.

Q. It runs through on the north ride?—A. It is on the west side of the St. Maurice River.

Q. It runs north?—A. Yes.

Q. Is the stream called the Ludger Noel?—A. Yes.

Q. This stream empties into the St. Maurice River?—A. Yes.

Q. And the arch is quite close to the mouth of the stream? A. Yes.

Q. It is a floatable stream used for logs?—A. I have been told they drive it continually.

Q. Did you see any driving down on it?—A. No, sir.

Q. Did you know what the high water mark was returned by Mr. Ferguson?—A. Well, may be I can help out by just making a little explanation. Before I was assistant district engineer there, I was a divisional engineer some distance below that, and consequently I was dependent for my water levels on my predecessors in that country. We had several water levels on that area and several on the St. Maurice River at different places, and that is all the information we had to go on, and when I got there it was the time this arch was about to start to build, when I came in charge of it, and there were several sets of levels given by Ferguson and Bourgois, and a number of other engineers that had been there before me. That opening was originally designed for a steel viaduct, and I think it was on a reverse curve—I am not quite sure about that—and finally we came to the conclusion, on account of having the pedestals on steep gravel side hills, and the undesirability of a viaduct at that point was on account of the curves, and that it would be better to put in an arch, and we decided on a forty-foot arch; that is how the decision was arrived at.

Q. Before that it was first decided that a steel viaduct was not desirable?—A. Yes.

Q. By whom was that decided?—A. Well, I think I am correct in saying that we had correspondence between Quebec and Ottawa, with Mr. Uniacke, upon that subject for certain weeks and possibly months.

Q. Eventually the chief engineer, or whoever was the proper officer—A. I think the bridge engineer Mr. Uniacke.

Q. He consented to doing away with the arch?—A. Yes, that is what I understand.

Q. A design was prepared, was it not?—A. Yes.

Q. For the culvert?—A. Yes.

Q. And is that not the design? (Showing blue print).—A. I think that is just about the design, as I remember it: it is about four years ago.

Q. Was there a plan sent to you to work under?—A. We had a standard plan for a forty-foot arch.

Q. What is the size of the arch as built?—A. Forty foot.

Q. Did you get a plan for a forty-foot arch?—A. We had what we call a standard plan.

Q. Did you get anything from the office in Ottawa for the building of that arch?—A. No, sir.

Q. Nothing whatever?—A. No more than the standard plan we had on fyle for any forty-foot arch: I think I am correct in saying that: I do not remember of any.

Q. By a forty-foot arch, you mean an arch with a span of forty feet?—A. Yes, sir, and in this case the ring is a twenty-foot radius.

Q. Are the bench walls shown on that at a certain height?—A. Yes, they are.

Q. The bench walls are the walls that support the arch?—A. Yes, exactly.

Q. And they are shown to be how high on the standard plan?—A. On this standard plan they are shown to be ten feet.

Q. And that is the general instruction, is it, on which the engineers act when a forty-foot arch is to be built?—A. Yes, general instruction.

Q. Who authorized you to put in an arch at all?—A. Why, it was agreed upon in the correspondence we had with Uniacke, the bridge engineer, if we assured him ourselves down there that a forty-foot arch would hold that strain.

Q. Have you any letter authorizing it? (Letters produced and referred to).

Q. It was apparently on your suggestion that this forty-foot arch was put in: at least, it originated with you, so far as the correspondence shows?—A. Well, I certainly was one that originated it: I think I said in my letter that there were three or four of us there.

Q. Did you not do the correspondence from the office?—A. I did the correspondence from the Quebec office. My office was in Quebec, then, you know.

Q. Did you examine it on the ground?—A. I did.

Q. And you concluded that a forty-foot arch was right?—A. Yes.

Q. You stated in your letter that a forty-foot arch was sufficient. You said in your letter December 21st, "They agreed with me, without one dissent, that a single forty-foot or a double twenty-five would carry this stream any time"?—A. Yes.

Q. You knew all the time you were corresponding that a forty-foot arch bridge was the standard forty-foot bridge?—A. Yes.

Q. Did you ever get any authority to raise the bench walls of that culvert?—A. We have that authority any time.

Q. I did not ask you that: did you ever get any written authority to raise them?—A. Not that I recall, from anybody.

Q. Did you consult your superior officers about raising the bench walls of that culvert?—A. Not that I recall, sir.

Q. The bench walls of that culvert were raised?—A. Yes.

Q. And they were raised so as to make the culvert how much higher?—A. Eight feet higher: I think it is eight feet.

Q. At a cost, I am told, to the government of $22,000?—A. That may be accurate, but I do not think it is that. I did cause the raising of that wall.

Q. But it was a large amount of money?—A. Yes.

Q. What right had you to take it on yourself to do that?—A. I produce a standard plan of a forty-foot arch (Exhibit A) and I draw your attention to figures on the side 3070, with a circle round them.

Q. These figures mean what?—A. Those are the height of the bench wall.

Q. And in this case show the height to be ten feet?—A. Yes.

Q. And you add the three and the seven together?—A. Yes.

Q. And opposite there are encircled in the same way the figure 30 and 50 and 25 four inches. What do those indicate?—A. The entire height of the arch.

Q. That is to the centre, from the floor?—A. From the top of the completed arch to the floor, and this is the height of the wall at its extremity, and I point out that on this plan are written the following words "Dimensions marked thus (with a circle) may be varied if necessary."

Q. And you say that under that authority you raised these bench walls?—A. Yes.

Q. What was the necessity for raising them?—A. As I told you, we were going on the data of water marks left us by our predecessors.

Q. What were the data that you had before you?—A. The high water marks given by all the locating and constructing engineers that had preceded me on the works.

Q. So far as the records go, I am instructed the high water mark is shown on this profile?—A. This is as far as Ferguson's high water mark is concerned, but we have several.

Q. Do you say that you had any other profile showing any other high water mark?—A. I cannot say that it varied from that; we had several others.

Q. Did you ever make any record, or can you refer to anything which showed the high water mark was higher than that?—A. No, I cannot state that positively.

Q. Don't you know as a fact it was not higher than that?—A. No, I do not. That gives the depth of that water on this plan ten feet on the profile, and it is practically 75 or 80 feet wide. Now we are congesting that into forty feet.

Q. That is on the lower side?—A. No, it is right in the centre line.

Q. Of the stream?—A. Crossing the stream, on the centre line of the railway crossing the stream, and if you congest that to forty feet, you would naturally expect it higher, and if you were going to have a log drive, and did not want it against the ring of the arch—

Q. You know the stream suddenly breaks out at the railway, and is not on the south side anything like 80 feet wide?—A. It certainly was at this time, because they have taken the elevations.

Q. It spreads out on the railway?—A. When it backs up it is high.

Q. But I am speaking of the stream: it is not fair to say that that is an eighty-foot stream coming down there and crossing?—A. In high water it is.

Q. Do you say that the stream was of that breadth on the south side of the railway?—A. Right on the exact centre line of the railway, and we congest that into forty.

By Mr. Gutelius:

Q. What plan is this we are looking at?—A. That is a plan of Alexander Ferguson, in charge of a location party to locate the railway, dated September 7th, 1907.

Q. And on this plan high water mark is shown at what elevation?—A. 645.

Q. And low water?—A. 636.8.

Q. What is the width of the stream at high water on the plan?—A. 85 feet.

Q. And what is the width of the stream at low water?—A. 50 feet.

Q. What is the elevation of the spring line on the arch as constructed?—A. 656.

Q. And the height of low water is what?—A. 636.

Q. What is the elevation of the bottom of the invert of the arch in the centre?—A. 637.

Q. So that it would require nineteen feet of water to make the surface of a flood equal to the height of the spring line?—A. Yes, to the level of the spring line.

By the Chairman:

Q. Then you ordered the walls to be increased under these circumstances without consultation with anybody?—A. Yes: I do not remember consulting anybody about it. I cannot say that I did, positively.

Q. Then were there other engineers on the ground?—A. If I remember right, the time that I decided to raise those walls was just after we had completed the piers in the St. Maurice River. This has a bearing on this: and I had completed them on the previous day in high water levels: and after we had completed those—we built them in winter before the steel had been put on—I stood there myself and saw the St. Maurice River and the ice going over the top of the piers five feet: that is practically the first opening on the St. Maurice below this; it is about 13 or 14 miles down.

Q. A flood in the St. Maurice would not be any more guide to you for the construction of this than a flood in the St. Lawrence?—A. No, I do not mean to intimate it would be a positive guide.

Q. It would not be any guide?—A. Well, it did not lead me to believe these men that were preceding me were underestimating the flood of the river.

Q. That they were not underestimating?—A. Or rather, it led me to believe they were underestimating.

Q. You came to that conclusion when?—A. When the freshet took place in the St. Maurice.

Q. When was it you began the arch?—A. The same year.

Q. You observed the freshet in the St. Maurice River months before you began the construction of the arch?—A. Not many; it was the same year.

Q. You made up your mind then that the figures of the engineers as to observations were not reliable?—A. I wanted to be on the safe side, because I had taken the responsibility.

Q. You saw Mr. Doucet?—A. Lots of times.

Q. You saw him many times before you commenced the construction of the Ludger Noel arch?—A. Yes.

Q. And you saw the Inspecting Engineer?—A. I think I saw him too.

Q. And you were in constant communication with the Head Office?—A. Yes.

Q. And yet you never drew it to their attention?—A. I cannot recall that I did; I may as well say I did not.

Q. If you did that, was it not undertaking something that you had no authority whatever to do?—A. Well, I think my authority is on that plan.

Q. I cannot see how it is, because it does not say you may vary those measurements?—A. What does it say?

Q. It says they may be varied where necessary?—A. It says they may be varied if necessary; that means by the engineer on the ground.

Q. I should think it means by the engineers. You were only assistant engineer; you never even spoke to Mr. Doucet about it?—A. No, I do not think I did.

Q. Did you pursue that policy of spending large sums of money off your own bat, without consulting any person else?—A. No, I cannot say that I did, sir. In the case of the St. Maurice we raised that fifteen feet.

Q. Did you consult Mr. Doucet in that?—A. Yes, I will tell you why; that was a vastly different point—

Q. Never mind that. Here you had present to your mind that this culvert should be raised, and it cost a large sum of money to raise it. Before you had adopted that culvert you consulted the engineers on the ground, you consulted Mr. Doucet, you consulted the Head Offices, and although you had the matter in your own mind for months, you deliberately put in those side arches without consulting anybody—increased the side walls without consulting anybody?—A. I never considered those side walls to be an absolute fixture.

Q. What do you mean by that?—A. I would consider myself—I may be wrong—that if I were putting in an arch for a certain purpose, and there was going to be hardly any water, I would consider myself justified in cutting that down five or six feet, or raising it, if necessary, on the ground; and we referred the bridge plans to the bridge engineer, because it was eliminating a structure.

Q. Broadly speaking, where increased expenditure was necessary over that contemplated and contained in the direct instructions, did you not always consult your superior?—A. No, sir.

Q. You did not?—A. No.

Q. Did anybody else do that, to your knowledge, on the road?—A. I am speaking, of course, of ordinary minor expenditure; I am not talking about change of location.

Q. Of course this was a large expenditure; it was increasing the cost of the whole fill and arch a fifth?—A. I cannot quite figure that out.

Q. Would you not think that improper deductions might be made by people, from your doing that?—A. I should say not; I do not see why they should.

Q. You have not, so far as we can see, given any data to show the necessity for it; you never consulted your superior, or a single engineer, and never wrote a letter, and involved the commission in an expenditure through a whim, so far as I can see?—A. Would not this plan you show me be considered a data?

Q. I want to know what the data is?—A. The water is ten feet deep in an eighty foot opening.

Q. And you knew that when you made that recommendation, and your recommendation said that a forty foot arch would carry it under any conditions?—A. But I did not say the arch would have eight or ten foot walls.

Q. You knew you were misleading the Head Office?—A. No.

Q. You knew what the standard arch was?—A. We had several standards.

Q. Had you a standard forty foot arch that differed from that?—A. I do not know whether we had or not.

Q. It is quite plain from your letter, December 21st, that you wished to, if possible, avoid a steel viaduct, and that you were trying to persuade them to built this culvert, as you use these words: "I have been on the ground with Timbrell and Grant"—that is the present chief engineer, is it not?—A. Yes.

Q. "And have enquired from Bourgeois and others that have been familiar with the Ludger Noel in freshet season, and they agree with me, without one dissent, that a single forty or a double twenty-five will carry the stream any time". There is your judgment formed after consultation with most capable engineers who are familiar with the conditions, and you, without any additional information, excepting, according to yourself, that you saw the St. Maurice in flood; you knew, according to yourself, the width of this stream, because you said you were on the ground—you deliberately increased that without any consultation with anybody, to the advantage of the contractor?—A. I do not know about the advantage to the contractor. I spoke to some of them up there, I do not remember whether it was resident or divisional engineers, in the matter, at the time of the St. Maurice flood that I refer to, and they told me that there had been a big flood here in this river.

Q. Who told you?—A. I have been trying to think ever since I have been in there, whether it was Timbrell or somebody else. I cannot state positively, because it is too serious a matter to say, unless I am sure of it, but some of the men on the ground did tell me, and I was on the St. Maurice River at the time.

Q. But you did not undertake to increase the length on the St. Maurice River without authority?—A. That was the bridge engineer's direct affair, because it was a bridge structure.

Q. But this was Mr. Doucet's direct affair: he was responsible for this expenditure, and you were in his office, in the same building with him?—A. I have changed culverts on that railway.

Q. I cannot conceive why you should do this without even telling the man in the same office?—A. I certainly do not recall telling him anything about it.

Q. And you can give no more explanation than you have given?—A. No more explanation than that I considered it advisable to raise it.

Q. No person agrees with you that we know of, and subsequent experience shows, as far as we know, that it was a waste of money, and you have not given any concrete evidence of why you did it?—A. If you take the thing theoretically, there is a plan——

Q. But you had that plan before you when you wrote this letter to Mr. Doucet?—A. Yes.

Q. Then you did not draw that conclusion at that time?—A. I did not state in the letter that the walls had to be ten feet high or fifty.

Q. You said two twenty-five or a forty would take care of it, under all conditions?—A. Yes.

Q. Do you mean to tell me that if any man wrote that letter to you, that you would not understand that the standard was what he was referring to?—A. Those dimensions are all variable.

Q. But you were referring to the standard arch; you were showing them by that letter that the price would not be any more than the standard arch, because this is an argumentative letter. You say in effect "I am sure that a standard arch, or two twenty-fives or one forty, will carry us under all conditions"?—A. Yes, this is made deeper on account of excavations for foundation, understand.

Q. I am speaking of the length above the water?—A. That makes a wall higher.

Q. You said a few moments ago that you did make changes in other work under your charge?—A. Yes.

Q. Without consultation with anybody else?—A. Yes, I did.

Q. Will you tell me one of them that is of any importance?—A. Offhanded, I should say that I had changed several culverts; it is a little hard for me to remember those exactly.

Q. Mr. MacPherson wrote to Mr. Lumsden, January, 1909, drawing his attention to the fact that the quantities being returned for standard culverts were largely in excess, not in accordance with the plans, and cited seven locations in District B where the total yardage called for by the standard plan amounted to 1471, while the total yardage returned by the resident engineers was 2,230 yards. Those are on Residencies 22 and 23: are those yours?—A. They were all under me.

Q. Can you give any reason why you increased the yardage in those?—A. I did not increase them. It was due to the foundation, or the particular structures.

Q. No, it was the thickness of the walls?—A. When we started the road, Residency 22 was where the work was started, and they were constantly changing the plans. If they had one set they had four, and the work was going on all the time, and we had to get along the best we could.

Q. Do you say you were not supplied with a plan which showed a fixed thickness for those walls?—A. I mean to say they were changing them monthly or weekly; that is a guess as to time.

Q. Do you repudiate the responsibility, so far as you are responsible, for the changing of the thickness of the walls of these culverts in these residencies?—A. I mean to say when we were building the plans kept coming in, in different ways, and we had to keep on building. We went on the best we could with what we thought was right. We had a set of standard plans sent to us that we never built one culvert on: that is the egg-shaped culvert, such as the C.P.R. used.

Q. In February, 1909, Mr. MacPherson wrote a letter and said:—"Assistant district engineer Hervey's statement that the culverts referred to were built before a standard plan furnished from this office is absolutely incorrect, as none of them were even standard when the final standard plans for these sizes of culverts were sent out. On August 15th, 1906, final standards were sent out and acknowledged by the district engineer, 17th August, 1906. The earliest start on one of the five culverts referred to on Residency 23 was September 5th, 1906, and the latest October 28th, 1906. This latest one is the worst of the lot in its departure from standard plans. The thickness of the arch at crown is 18 inches instead of nine inches on standard, and depth of concrete under culvert three feet three inches instead of six inches". Is that right? You cannot tell us anything about the foundation part of it?—A. No.

Q. "With the result that the total concrete in the structure is 2.6 times that called for by the standard plan. Most if not all of the plans of small arch culverts received from District B to date have thickness of crown and other features different from the standard, proving that the men on the ground have taken

it upon themselves to alter or ignore the standards, the result being always increased quantities". What do you say to that?—A. That was from August to September, I understand?

Q. Yes?—A. I think that we had been building culverts on the plans that those culverts are built on prior to receiving—possibly not those particular culverts but other ones in the same residence prior to receiving those final standard plans, and that they went on with them; that is my impression about that, because we had three different sets of standard plans sent us in one summer right at the time you speak of, and we went on the best we could and designed our own culverts, because we did not know what we were going to do.

Q. Did you make any protest or send in any letters about it, or put yourself on record?—A. I think there was a certain amount of correspondence about culverts and standard plans and criticisms of them. I supposed the thing had been done away with long ago.

Q. If Mr. MacPherson's statement is correct, is there any excuse for having departed from the standard plans?—A. Any more than we were probably building on those very plans the culverts were built upon before.

Q. He says they were not commenced till after?—A. But there were other culverts there, and the resident engineers were working on those plans at the time, and they might have received them at that date, or might not have received them till afterwards.

Q. You mean to say that, although the plans might have got to the district engineer's office, they might not have got to the resident engineer's office in time, before the commencement?—A. That is very possible, but I do not state that it did happen, because they sent out a negative, and they all had to be reprinted and sent out.

By Mr. Gutelius:

Q. Did you knowingly permit an eighteen inch ring on a six foot arch?—A. I cannot state positively whether I did or not.

Q. Do you think you did? If you came to a six-foot arch and found them putting an eighteen-inch ring on, what would you do?—A. I think I would consider it about right. I have forgotten. I was never much on culvert design. I am not clear on the point. I could not tell you whether I permitted that or instructed it or not.

Q. Referring to that three-foot thick invert, if you found it was necessary to go three feet below the depth of the stream, would you consider it good economical construction to fill the hole from the bottom up entirely across the bed of the arch with concrete as deep as three feet or more?—A. We would put in inverts wherever we thought there was danger of scouring.

Q. What depth of invert concrete do you think should be a maximum for an eight-foot arch?—A. I should think about 12 or 18 inches.

Q. Then if you had a hole deeper than that you would have filled it with what?—A. Rock, I suppose, or other material.

Q. So that it would not be good engineering to fill up a three-foot hole with solid expensive concrete?—A. No.

Q. That was done on that work. Did you know of it?—A. I cannot say that I did.

Q. Referring to standard plan of forty-foot arch, these variable dimensions are intended to enable the engineer in the field to fit the arch to the ground as he finds it?—A. That is what I understand it, yes.

Q. If this standard plan showed high water mark at the line where the terms "springing line" are printed, what effect would that have had on you in locating the height of the side walls of the Ludger Noel arch?—A. I should think that the area ordinarily below the springing line, the cross-section area below the springing line should be sufficient in that arch or any other to take care of it—or equal to the water at high water level.

Q. And the area on Mr. Ferguson's plan would be fifty feet on the bottom, eighty feet on top, ten feet high, which would equal 650 square feet?—A. Yes.

Q. The area of waterway in the Ludger Noel arch as constructed is what?—A. 760 feet.

Q. You provide a margin above your own formula of 110 square feet?—A. Yes.

Q. Or three feet as least?—A. Three feet in height.

Q. As an engineer, you figure that that extra height was necessary for a safe structure?—A. Considering it was a log driving stream I do, with the information I had at hand.

Q. The amount of money, as brought out heretofore, is large?—A. Yes.

Q. And the fact that you did not take this up with your superior officers is the one thing which we are rather putting up to your door. If you had known that this was going to involve anything like that additional expenditure, would you not have taken it up with your superiors?—A. I did not realize the large expenditure.

Q. If you had realized it, you would?—A. Yes.

Q. Now, that it is all over, you are willing to say that unfortunately you overlooked discussing this matter with your superior officers, although, as an engineer, you felt that that extra height was necessary?—A. With the information I had, I do.

(N. T. R. INVESTIGATING COMMISSION, EVIDENCE TAKEN ON THE TRAIN BETWEEN GRANT AND COCHRANE, JUNE 9th, 1912.)

H. M. BALKAM, sworn:

Examined by the Chairman:

Q. You are an engineer by profession?—A. Yes, sir.

Q. How many years' experience have you had as an engineer?—A. About thirty odd.

Q. Have you had experience in classification in Canada before you came on this road?—A. Yes.

Q. On what roads?—A. The last one I was on was the New Brunswick Coal and Railway.

Q. How long were you there?—A. About three years.

Q. And before that where were you?—A. On the Bangor, Aroostock and Maine Railway.

Q. When did you come on the Transcontinental?—A. In September, 1904.

Q. Where was your first experience on that line?—A. In New Brunswick.

Q. How long were you there?—A. I was there until the winter of 1905 and 1906.

Q. What was your position there?—A. In charge of surveying party.

Q. You came up to this country when?—A. I stayed in New Brunswick until the winter of 1905-6.

Q. Then to this country?—A. No, then in the Nipigon country.

Q. How long did you remain there?—A. Stayed there until September, 1906.

Q. When did you come here?—A. I came here about the 1st of September last year.

Q. In the meantime where were you?—A. On the Transcontinental N.B.

Q. In 1906?—A. Yes.

Q. You went back to New Brunswick?—A. Yes.

Q. What were you engaged at down there?—A. I was on location, divisional engineer, assistant district engineer until 1908, I think, and then I was inspecting engineer.

Q. On what?—A. On the whole road.

Q. From Winnipeg to Moncton?—A. Moncton to Winnipeg.

Q. Then after that?—A. I came here in September as district engineer.

Q. You are now district engineer where?—A. Headquarters at Cochrane, district C.D.

Q. About how many miles in your district?—A. About 400.

Q. Have you the control of the classification over that whole district?—A. No.

Q. Have you control over any part of it?—A. No.

Q. Have you any concern with the classification?—A. Certainly.

Q. What is your position?—A. I control the classification until I am overruled by my superiors.

Q. Then you control all the classification on that 400 miles until you are overruled by your superiors?—A. Yes.

Q. Who are your superiors?—A. Gordon Grant, chief engineer.

Q. Anybody else?—A. Not that I know of.

Q. Then you are next to Mr. Grant?—A. On this piece of ground.

Q. Does your district extend through what is called the clay belt?—A. It is virtually all in the clay belt.

Q. Is the country about the same as from Peter Brown to Grant?—A. No; the surface of the country down there is very near the same. Down there we have that underlying soft blue clay and that does not occur up on the western end.

Q. Have you given any instructions to the resident engineers, the divisional engineers, or the assistant district engineers with regard to classification since you came on the road?—A. Yes.

Q. Were those instructions in writing?—A. No; there might be some in the form of a circular letter.

Q. Have you kept a fyle of written instructions which you gave to your engineers?—A. Yes.

Q. And among those are there circular letters concerning this classification?—A. Yes.

Q. Where is that fyle?—A. In my office at Cochrane.

Q. Is the classification in your district governed by your instructions?—A. Yes.

Q. And you are, therefore, responsible to your superior for the classification in this district?—A. Well, not what was done previous to my connection with the district.

Q. But since you came here?—A. Yes.

Q. Have you given any different instructions for classification apparently different from those which were in force when you came here?—A. Only in one instance that I can remember.

Q. What was that?—A. That was to classify no clay other than common.

Q. As what?—A. To classify all clay as common excavation, pending a plough test.

Q. In consequence of what did you give those instructions?—A. Because I was so instructed by the Chief Engineer.

Q. When was that instruction given?—A. Some time this spring.

Q. Before that had you given any such instructions?—A. I had given instructions to cut out a certain classification that had been returned as loose rock for clay that was too soft to plough.

Q. Will you tell me where that was?—A. I think that was only on two contracts.

Q. What contracts were they?—A. 15 and 14.

Q. Whose were they?—A. 14 is the G.T.P. and 15 is Fauquier Brothers.

Q. The G.T.P., or Foley, Welch & Stewart?—A. Yes.

Q. Why did you do that?—A. Because I was so instructed.

Q. To cut out the soft clay?—A. Yes.

Q. And to classify the soft clay as what?—A. Common excavation.

Q. Who instructed you?—A. I think the instructions came through the chief.

Q. Do you recollect?—A. I cannot say positively whether these instructions came from Mr. Leonard or the chief.

Q. That was after Mr. Leonard came in?—A. Yes.

Q. Did you change it before Mr. Leonard came in?—A. Yes, I changed the classification in that pit we saw this morning.

Q. Tell me the number of it?—A. That was at Missinabie, about mile 211.

Q. What classification did you change there?—A. I changed it from train fill to classified train fill.

Q. What is the number of the pit?—A. Number one.

Q. You changed it from train fill to what?—A. Classified train fill.

Q. What is train fill classification?—A. That is something that is not allowed in the book.

Q. Was train fill more expensive classification or less expensive?—A. My classification was more expensive.

Q. How was it being classified before you made the change?—A. Train fill; no classification.

Q. What was the commission paying for it then?—A. 55 cents.

Q. Did that include overhaul?—A. No.

Q. 55 cents a cubic yard and overhaul, whatever that amounted to; is that right?—A. Yes, if there was any.

Q. Was there any overhaul?—A. Not in that case.

Q. So that it was costing them 55 cents?—A. Yes.

Q What did your classification make it cost them?—A. 97 I think.

Q. Had there been any complaint made about it?—A. I could not say as to that.

Q. How long had it been classified as train fill?—A. Well, during that season.

Q. During what season.—A. Last year, 1911.

Q. When did you change it?—A. I think it was in November or December.

Q. What made you change it?—A. Because I thought it was right.

Q. Was there no other reason? Nobody was making any complaint?—A. No.

Q. You just of your own motion, without any instructions or complaint, raised it to 97 cents?—A. That is my remembrance of it now.

Q. Was that not rather an extraordinary thing to do?—A. I do not think so.

Q. You were there in the interests of the Transcontinental, were you not?—A. Certainly.

Q. It was not in its interest to pay any more money than people were asking?—A. It was my interest to pay what was right; it was my business to pay what was right.

Q. What was this material?—A. It was clay.

Q. How has it been taken out?—A. Pick and shovel.

Q. And it was just scooped out with a steam shovel, was it?—A. Handled with a steam shovel, as far as I know.

Q. Is there very much of it?—A. Yes, there was a good deal of it.

Q. How much did you classify of it?—A. I would have to look it up. I should say something like 50,000 yards.

Q. Did you communicate with the chief engineer before you changed this classification?—A. I do not remember that I did.

Q. Did you advise him by letter that you had changed it?—A. It showed on the form.

Q. What entry on the form did you make that would draw any person's attention to it?—A. It showed a minus quantity in train fill and a plus quantity in classified train fill.

Q. I do not follow you; you have certain forms on which you enter the classification. Did the classification say?—A. We change it from one item to another.

Q. Did the classification say, before your time, that material taken from pit number one, for instance, is paid for as train fill?—A. That shows on the form.

Q. When you came along did you change the figures?—A. I took so much out of the train fill column and put it into another column.

Q. If the chief engineer had the two documents before him would he know that the material that the commission had been paying as train fill was raised now to 97 cents?—A. Certainly.

Q. How could he tell it?—A. It was self evident on the form.

Q. You did not draw his attention to it more than that?—A. I do not know: we generally sent in a letter as to any change; I could not say whether we actually sent in a letter of that kind.

Q. Had you any discussion with anybody before that?—A. Yes, I discussed it with the divisional engineer, Mr. Pardee.

Q. Anybody else?—A. I do not remember.

Q. Had you any discussion with any of the commissioners or any of the higher officials before you did that?—A. I do not remember of any.

Q. You would remember, would you not?—A. I do not think I did.

Q. Did you see any of the commissioners before you did it?—A. I do not think I mentioned it to them.

Q. Do you remember the month you made that change in?—A. I think it was November, but I would not be sure.

Q. Were any of the commissioners up here in November?—A. I could not just say when they were up; they were not on that part of the work. They were up here one time and went to Grant in the night, but I could not fix the date.

Q. Did you see them up here before you made the change?—A. No, I do not think it.

Q. Can you say whether or not you discussed it with any of the commissioners?—A. I am almost positive that I did not.

Q. You do not discuss things with the commissioners every day, and I should think you would have a recollection whether you did or not. You should be able to say definitely?—A. Well, to the best of my recollection, I did not.

Q. Was Mr. Grant with them?—A. I think he was.

Q. Did you discuss it with him?—A. Not previous to making it.

Q. Did you ever discuss it with him?—A. Yes, sir.

Q. When?—A. Since.

Q. When?—A. In his office at Ottawa.

Q. When?—A. I could not fix the date.

Q. Was it since November 1911?—A. It was since I made the difference in the classification.

Q. You cannot come any nearer than that to it?—A. No.

Q. How did you come to discuss it with Mr. Grant?—A. Because the classification that I made was cut out in the Ottawa office.

Q. Was there ever any of it paid for under that classification?—A. No.

Q. And whose contract is it in?—A. O'Brien, Macdougall and O'Gorman.

Q. Did you discuss it with any members of that contracting firm before you made it?—A. Yes, I talked with Mr. O'Brien about it.

Q. Before you made it?—A. I do not remember whether it was before I made it.

Q. How long had the pit been opened?—A. Some time that spring.

Q. Is there any correspondence bearing upon the classification?—A. Yes.

Q. In your possession—before you came in?—A. No, not that I know of.

Q. None at all?—A. No.

Q. Do I understand you to say that, without being moved to do so by any person, either in authority or not, that you, of your own volition, and on your own responsibility, changed that classification?—A. I did, off my own bat.

Q. Did you change any other classification?—A. Yes.

Q. What did you change?—A. I adjusted the classification west of the Kikamenogany River.

Q. What was that adjustment?—A. I lowered it.

Q. What did you lower?—A. The cuts and the borrows.

Q. The cuts and the borrows?—A. Yes.

Q. What was it before you lowered it?—A. It was a little different.

Q. I would like to know something definite about it?—A. I went over that work, and the classification which struck me as too high I reduced.

Q. Then you did find some classification in that place too high?—A. Yes.

Q. For example?—A. I do not think I could mention any special case.

Q. Did you find any material being classified out of its class?—A. In my judgment, yes.

Q. What material did you find so classified?—A. Clay.

Q. What kind of clay?—A. Indurated clay.

Q. Was it classed too high or low?—A. The most of my changes were lower.

Q. You lowered some indurated clay from loose rock to common excavation?—A. Yes.

Q. Was there a large or small quantity of this?—A. There was about forty miles of it.

Q. About what quantity would there be, very roughly speaking?—A. In a rough guess it was going on 15,000 yards to the mile.

Q. That was done when?—A. That was in September.

Q. Who was classifying in that way?—A. The engineer on the ground.

Q. Do you know who it was?—A. The different resident engineers and divisional engineers.

Q. Can you give me where that occurred, between what points?—A. It was from the Kikamenogany River, from about mile 5 or 6, up to 60. I said forty miles; it was more than 40 miles.

Q. This clay you considered common excavation, and you changed it, to make it common excavation?—A. Yes.

Q. About what per cent of it?—A. According to the different material.

Q. What I understood from your answer was that you reduced about 15,000 yards a mile?—A. The work averaged about 15,000 yards a mile.

Q. Your action affected about 15,000 yards a mile?—A. More or less.

Q. Approximately 15,000 a mile?—A. Yes.

Q. So that it was a very serious and important reduction in classification?—A. Yes.

By Mr. Gutelius:

Q. 15,000 per mile, or 15,000 all told?—A. I am taking the average of 15,000 a mile for the grading of the road.

By the Chairman:

Q. You found what you estimate as 15,000 cubic yards per mile of clay in the locality which you have last named had been classified as loose rock, and you classified it as common excavation?—A. No, sir.

Q. What did you say?—A. I said I estimated the yardage would run 15,000 yards to the mile, and I reduced that in places. It was not all clay. There was a lot of muskeg.

Q. I am talking about clay?—A. I could not say what proportion of that would be clay.

Q. How much would you estimate the clay would be?—A. I could not say.

Q. How much would you estimate your deduction affected—A. I could not say that.

Q. Did it affect 500 yards?—A. Oh, yes.

Q. All told?—A. Yes, more.

Q. What would it affect?—A. I could not give you any idea.

Q. Can you tell me within 10,000 yards?—A. No.

Q. Can you tell me within 50,000 yards?—A. No, I could not.

Q. Could not tell me at all? It had been classified? It was on the books?—A. Yes.

Q. And you had the classification changed?—A. Yes, I gave instructions to classify differently.

Q. And the changes would show on the sheets?—A. No, it would not all show until the work was completed. Supposing they were given fifty per cent in a cut, and they had only worked a little bit in it, I would say to the engineer "If that cut holds as it is, it should not be more than thirty per cent." That would not show on the returns until the cut was finished.

Q. You cannot give me any definite information as to the saving this reduction effected?—A. No.

Q. You cannot swear whether it effected any material saving at all or not?—A. No.

Q. It may have been so small as not to have amounted to anything, for all you know?—A. Yes; I never worked it out.

Q. Did you raise the classification in that district at all?—A. There may have been places where I raised it.

Q. Do you remember raising it?—A. I do not remember any place it was raised.

Q. So far as you are at present able to say, you cannot tell me whether you changed the classification to the advantage of the commission in any place before you got the instructions that came after Mr. Leonard came in?—A. This change I just told you about was a reduction.

Q. You have told me you did not know it amounted to anything?—A. I never estimated what it amounted to.

Q. What material have you approved of being classified as solid rock excavation over your whole district?—A. Nothing but solid rock and boulders more than a yard.

Q. I suppose you approved of all large stones and boulders measuring more than one cubic foot and less than one cubic yard, and all loose rock, whether in situ or otherwise, that may be removed by hand, pick or bar, being classified as loose rock; that is right?—A. Yes.

Q. Had you any cemented gravel along your district?—A. I do not think it.

Q. Then we come to clay: did you approve of or instruct any clay to be classified as loose rock?—A. Yes.

Q. What clay did you approve of or instruct to be classified as loose rock?—A. Indurated clay.

Q. All indurated clay?—A. Indurated clay that, in my judgment, was sufficiently indurated.

Q. Do you consider that an intelligent answer?—A. Yes.

Q. I would like you to try and put it to me in less technical language. What clay did you instruct or approve of being classified as loose rock?—A. Clay that I thought was sufficiently indurated.

Q. To be what?—A. To be entitled to be called loose rock.

Q. What clay did you consider to be sufficiently indurated to be entitled to be called loose rock? Now, supposing I am the engineer and going out on the job, and you are going to tell me what clay I will testify as loose rock, what will you tell me?—A. I will tell you I want to see the clay, and when I see it I will say, "This is loose rock" or "This is not".

Q. But if you were going to send me out, what would you tell me?—A. If I were going to send you out I would give you that specification.

Q. You would wash your hands of any instructions and hand me the specification?—A. Then I would go out and see what you were doing.

Q. You would hand me the specification and tell me to go out and pick out of the specification what it should be myself?—A. I never ask an engineer to return anything outside of the specification.

Q. If you were sending an engineer out over this work, you being familiar with the specification as you are, what instructions would you give him about clay?—A. I would tell him to classify clay in strict accordance with the specification.

Q. Then would you tell him to classify any clay which could be ploughed with a ten-inch grading plough behind a team of six good horses, properly handled, as loose rock?—A. That would depend upon who does the ploughing.

Q. Would you tell him that any clay which, in his judgment, could be ploughed behind a team of six good horses, properly handled, should be classified as loose rock?—A. No, if it could be ploughed, in his judgment, he had to classify it as common.

Q. Is there any clay here which could be ploughed by such a team and such a plough being classified as loose rock, to your knowledge?—A. No.

Q. There is not?—A. No.

Q. Then you consider that it is the duty of the engineer not to classify clay which could be so ploughed as loose rock under this specification?—A. Certainly.

Q. And if it has been so classified, it has been wrongly done?—A. Certainly.

Q. Is there any excuse for a person under this specification classifying clay which can be so ploughed as loose rock?—A. Yes, it is a question of judgment.

Q. But if he thinks it can be ploughed?—A. He certainly would not return it if he thought it could be ploughed.

Q. Have you made any tests to see whether any clay which has been so classified could be ploughed?—A. No.

Q. Do you think the clay along this district can be ploughed with such a team and such a plough?—A. Very little of it.

Q. What portion of it could be ploughed?—A. Oh, I could not say that.

Q. Where will you find that which can be ploughed?—A. Well, each case, as you come to it, you decide on each case on the ground.

Q. Is there some of it can be ploughed down two or three or four feet?—A. Yes.

Q. Five or six feet?—A. No. I do not think there is any can be ploughed that depth.

Q. Down as far as four feet?—A. No, I am very doubtful about that.

Q. You say it is only the surface can be ploughed?—A. Not always that.

Q. But only the surface in any case?—A. But not always the surface.

Q. But in any case it is only the surface; it never goes below the surface?—A. No, it might be the other way. I have seen streaks underneath that could be ploughed.

Q. What do you mean by ploughing?—A. I mean practical ploughing.

Q. Do you think a team of horses could not pull a plough through most of the clay in this district?—A. I would not consider that ploughing.

Q. But a team of horses could pull a plough through it?—A. I have no doubt they could, through most of it.

Q. And turn it over?—A. Some places would turn over and others would fall back.

Q. Are there any large quantities you could turn over?—A. Yes.

Q. And that has been classified as loose rock; is that right?—A. Yes.

Q. What justification is there in the specification for classifying as loose rock any such clay that could be turned over by such a plough?—A. Because you have not accomplished the purpose for which you plough; it is not practical ploughing.

Q. Explain, please; you are doing the explaining?—A. Well, the fact that you can pull a team through it is no use. You plough for a certain purpose, the same as you blast a rock for a certain purpose, to break it and handle it. If ploughing made this clay readily handable, I would consider it ploughing; otherwise, I would not.

Q. You thought it could be turned over, but you classified without seeing it done?—A. There was never any plough work on this to my knowledge.

Q. You concluded that you would never accomplish your purpose by ploughing?—A. You had not accomplished your purpose.

Q. You concluded you had not accomplished your purpose?—A. Yes.

Q. What reason had you for concluding that?—A. My judgment.

Q. How did you arrive at that? Because a man is supposed to exercise his reason. How did you arrive at that?—A. From the nature of the material.

Q. Had you ever tried it in your life on that kind of material?—A. Not just exactly on this kind of material.

Q. So that you had no experience in it; you could do more than guess, could you?—A. Oh, yes.

Q. How can a man form a judgment without experience?—A. You know it is a tough, hard material. You can form some idea by the way a pick or shovel works on it how a plough would work it.

Q. How was it taken out?—A. A great deal of it was blasted.

Q. Was there any continuous blasting in the whole district?—A. Yes, there has been continuous blasting in my time.

Q. Where?—A. Up on 29.

Q. Mr. McBey's?—A. No, beyond his—it is his division now.

Q. Was there any other place where continuous blasting was used to get out clay?—A. No. Those cuts were nearly all out before I came here.

Q. Was there any used in your time?—A. I do not know of any.

Q. Do you know if any was used before your time?—A. That would be only hearsay.

Q. Well, from hearsay?—A. I could not swear to that.

Q. You could not enlighten me on that?—A. No.

Q. You could not tell me of any?—A. No.

Q. So far as you know, there was not any?—A. I really do not know anything about it.

Q. Is there anywhere where I can find reliable information in any records showing where continuous blasting was used?—A. There should be a record of how much explosive is used in each and every cut on the road.

Q. In whose possession should that be?—A. It should be in the Ottawa office.

Q. Had you any written instructions, excepting what are contained in the specifications, as to how you should classify material?—A. Well, there has been the Lumsden circular that I recall now.

Q. Did you ever remeasure any of this work at all?—A. No.

Q. So that from actual measurement you cannot say whether it has been properly measured or not?—A. No.

By Mr. Gutelius:

Q. With reference to your interpretation of the specification, I notice that you are reading into the specification the same idea, under loose rock, that is presented under solid rock, where it says, "May best be removed by blasting". You read the loose rock specification to mean, "May best be removed by ploughing"?—A. To a certain extent. Where it would be practicable to plough it, and you would accomplish the purpose you ploughed for.

Q. You observe the reading of it, "In the judgment of the engineer can be ploughed"?—A. Yes.

Q. It does not say, "In the judgment of the engineer can be blasted"?—A. No.

Q. It says, "May be best removed by blasting"?—A. Yes.

Q. Would it surprise you to learn that the proper interpretation of this ploughing clause is that it is simply a test? Had you considered that it might simply be a test?—A. Well, whose interpretation would that be?

Q. Have you ever looked at it from that point of view?—A. Yes.

Q. And, after looking at it from that viewpoint, concluded that was the wrong view to take?—A. Yes.

Q. Was that based on the language of the specifications?—A. No, I supposed it was not a catch question: it was actual conditions as they would be on the work.

Q. A test in cement is how many pounds it takes to pull apart, where the cross-section is a square inch?—A. Yes.

Q. A test for softness at a foundation is driving a pipe?—A. Yes.

Q. Suppose, instead of the specification reading as it does, it read, "Cannot be penetrated by a two-inch pipe driven by one man, with a sixteen-pound hammer, without the necessity of blasting", and so on?—A. I understand you.

Q. Did you have that feature in mind in connection with ploughing?—A Well, I understood that that feature was possible—that that construction of that language was possible, but I did not put that construction on it. I put it practical ploughing.

Q. But there is no language that gives you the idea of practical ploughing for the removal of the material, is there?—A. Yes, I think there is.

Q. You have had this specification before you for three or four years and studied it more times than once?—A. Yes.

Q. If the price for loose rock and common excavation had been the same, and you would read this specification literally, would you classify any clay that could be ploughed as common excavation?—A. You would not give it a thought; you would not be bothered with keeping any different check on it, measuring or anything.

Q. But as an engineer, you would be expected to place these things where they belonged, in accordance with the specification?—A. You would be very careless about it.

Q. Because there would be no money involved?—A. There would be no object in spending any time in keeping them different, under the circumstances you state.

Q. Is it not a fact that the money, the cost of moving, and the price that is being paid, influences classification by you?—A. It should not.

Q. Does it not?—A. Well, we are all human; it might, but it should not.

Q. When you talk to a resident engineer about the hardness of stuff in a cut, does he not give you information which is either reduced to dollars, or which you can reduce to dollars very quickly?—A. As soon as we know the difference we can reduce it to dollars. What I understand you to ask me is if I would classify by cost?

Q. Does the cost influence you in your classification?—A. I should strive not to allow it to influence me at all. I should certainly say it was wrong. It is the material only that is to be judged.

Q. You have ignored the plough test?—A. There has never been a plough test made.

Q. You classified loose clay on this contract knowingly that could have a plough dragged through, that could be broken up by a plough; you classified and signed the estimates for that character of material as loose rock?—A. No, sir, I will not admit that.

Q. You admit that there is clay that has been classified as loose rock, which could have been ploughed?—A. The plough could have been dragged through it.

Q. You have allowed to be classified as loose rock clay that a plough could have been dragged through?—A. Yes.

Q. In the matter of general construction of this division, I see fills along for miles that look to me as if they could have answered every purpose in the matter of gradient and curve, and be lowered from one to three feet. Does your observation concur in that statement?—A. I have asked on several occasions to be allowed to increase the gradients in places, but I was never allowed to.

Q. If you had been allowed a free hand, you would have changed the gradients, both for rate of grade and for elevation of grade, and saved money on your district?—A. I have been allowed to change the gradient, the elevation of the grade, but not allowed to change the rate of grade. I certainly would change the rate of grade.

Q. Are there not many locations in which you could change the gradients to the economical advantage of the Commission?—A. That is what I have wanted to do.

Q. I mean these banks that are run along the river three or four feet high?—A. I understand you mean making a sag, departing from the four-tenths grade and making a sag and coming up again?

Q. Here is a level piece of muskeg which has a bank three feet high on which you propose to put 18 inches more on ballast and track. That three feet could be reduced to a foot and a half to advantage?—A. No, not in a wet country, or in a country where snow would drift. That additional elevation is worth its price.

Q. Is it?—A. In my opinion.

Q. How deep does the snow get?—A. It is not the depth of it; it is the wind.

Q. How deep does it get?—A. I suppose three feet would be as much as I have seen.

Q. If the rails were three feet above the surface of the ground out of the right-of-way, it would be swept clear by the wind, would it?—A. Not always.

Q. When would it not be?—A. If there was a heavy snow with no wind, and the plough went through and threw that up, the snow would fall up to that top.

Q. It would not throw it up; it would throw it out?—A. No, they could not throw it all out.

Q. On a fill of that kind, the snow would not make an embankment?—A. I would not advocate a ten-foot fill, but I do think it should be three or four feet above the surrounding country.

Q. You have never operated much with a snow plough?—A. I have been on a snow plough.

Q. Much?—A. Not very much.

Q. Many winters?—A. No.

Q. Never undertook to keep your mileage open during winter?—A. No, only keeping a piece of construction work open during the winter.

Q. You would make a sub-grade three feet above the surrounding country through this level muskeg?—A. If it is very wet, so that we would have that much of dry material.

Q. On which to lay your track?—A. Yes.

Q. Why do you say three feet instead of 18 inches?—A. Because that 18 inches is not sufficient height to keep dry, and it saturates with water, and the road heaves.

Q. And the saturation comes from the water that runs below?—A. Yes, it is the capillary attraction; there is more or less moisture in it.

Q. If you constructed ditches, as you have, along here, is not that standing water removed, and there is nothing for capillary attraction, except the rain fall? —A. To ensure the road being sufficiently dry, so that it will not heave, is all that is necessary.

Q. Are you spending money to prevent heaving on this road?—A. We certainly should.

Q. Are you?—A. We should have the banks high enough so that they are dry.

Q. Is that the reason that the many miles that I see here appear to be elevated too high to prevent heaving and possibility of snow?—A. You are asking me something I do not know anything about, but we are simply working to the grades we are given.

Q. You are defending the grades?—A. No, I am against them.

Q. You are not defending the grades, either for height or gradient?—A. I am defending them when they go less than three feet.

Q. Less than three feet of finished track?—A. Yes.

Q. If momentum grades within the limits of four-tenths eastbound and six-tenths westbound had been introduced, you would have saved a lot of money? —A. Yes.

Q. It would have given you a maximum of one per cent to work on?—A. Yes.

Q. Have you any idea what you would have saved?—A. Never made any estimate.

Q. It would be a large amount of money?—A. It would be a large amount of money, certainly.

Q. Were you ever connected with a railway in which all the structures were made permanent while the railway was being built, before this one?—A. No, I do not think I was.

Q. If you had been permitted to use wooden trestles at all of these points that you are filling now, would you have saved a large amount of money in original investment?—A. In some places, not all of them, by any means.

Q. In the net result over the whole division?—A. You could make an immediate saving by putting in wood in place of fill in places.

Q. And a large expenditure might have been deferred for from six to ten years?—A. I would not recommend wooden trestles, if that is what you mean.

Q. You would have saved a large amount of money?—A. By using wooden trestles you could build the road and not pay out so much money at the time.

Q. And your division probably would be finished by now?—A. No, it would not.

Q. It would have shortened the time very much to have constructed wooden bridges rather than waiting for steel and fills and arches; it would have expedited the work?—A. Yes, you could have expedited the work.

Q. And saved a large amount of money at present?—A. Yes.

Q. Take that fill at 1040 that has slid out so, do you think that if a pile foundation trestle had been built there originally, without touching the water way at all, that there would have been any slide?—A. Excuse me, that is before my time.

Q. This is professional. Do you think there would have been, as an engineer? —A. I have very little faith in a wooden trestle on that kind of material.

Q. Would the pounding of the piles in there loosen it?—A. No, but I do not know whether you could have held piles there.

Q. I thought you would have answered without scrapping?—A. I do not know anything about that. You ask my opinion, whether I would have advocated—

Q. I ask your opinion whether, if a pile foundation wooden structure had been built there originally, you believe there would have been any sliding of that material —no fill at all?—A. I could not answer that.

Q. You are dodging?—A. No.

Q. Suppose the railroad had never been built up there, would there have been any slide there, where that 150,000 went?—A. No, it is not likely it would.

Q. Suppose the engineers walked across there, would there have been any slide?—A. No.

Q. Supposing you drove a string of piles across there, would there have been a slide?—A. We have one case where there was a slide with a string of piles along.

Q. Had you any reason to expect such a thing to happen in this place?—A. That is the trouble; we do not know when to expect these things in this country.

Q. Have you any reason to think so in that case?—A. There was nothing on the surface to indicate that as far as I know.

Q. Would it probably not have slid?—A. I could not say that.

By the Chairman:

Q. How would the piles make it slide?—A. The mere running through might make it slide.

By Mr. Gutelius:

Q. There is no catch in this. All I want you to say is what any engineer will say, that virgin country such as that ought not to slide in your opinion, and you would not expect it to slide if you built a trestle across it?—A. I certainly would not have expected it to slide, from the indications on the surface.

Q. With all your dodging, it would look as if you were not working with me? —A. Oh, no, I am not dodging. I did not understand the fact; I will certainly admit that right off.

Q. There are other permanent structures which have slid out and require a large amount of filling, on your division, in which the cost of the extra filling might have been saved for a long time, if they had built wooden trestles over it on pile foundations?—A. Correct.

Q. And if that system had been followed, a large amount of money could have been saved?—A. Present expenditure, yes.

Q. You know from your experience on other railways that your division has cost a large amount of money?—A. Sure.

Q. Besides the permanency of structures and the low gradients and the light curvature, do you know of any other places where money in considerable quantities might have been saved in this construction?—A. You mean in location?

Q. Well, take location if you like; if you have a point where you think, in location, a certain amount of money might have been saved, either by dodging a muskeg, or reduction in material—A. No, I think the location is good.

Q. This is the point I want to make; your division has cost a large amount of money. You are practically chief engineer so far as the division goes. I want to give you an opportunity to tell this commission why your division cost such a large amount of money. Take your own way to do it?—A. Well, the principal thing is the unreliable bottom that we have struck in the east, and the prices at which the work was let on account of the difficulty, that the work was removed from civilization, and the scarcity and high rate of labor in the country.

Q. Do those prices for labor and men generally run 25 to 35 per cent more than they would down in civilization?—A. They run something; I would not put any certain value on it.

Q. So that in the evidence, so far as labor is concerned, 33 per cent, or something like that—we would have to expect that item would increase that much for this construction?—A. Whatever the value is, I would not put any value on it.

Q. The extra cost of cement is simply the transportation?—A. Yes.

Q. Is it not the fact that the price paid to the general contractors, as compared with the prices paid to the subs, represents a larger amount of money than the difference between prices of labor and material here, as compared with such prices down in civilization?—A. I do not know. You are talking about something now I do not know much about.

Q. Do you know anything about the prices the subs are getting?—A. No.

Q. You do know that this line of railway has cost, or is going to cost, more than double any railway you were never connected with before?—A. I know it is a very expensive railway.

Q. You know it is a cheap country to build in; you never built through as cheap a country for the inequalities in the surface—A. You mean the yardage per mile would be low?

Q. Yes; you never built one any lower, except some branch line. The cuttings were usually greater than on this railway?—A. Yes.

Q. And yet your prices are nearly double. I should think you would be glad to tell the Commission where that extra cost comes in?—A. Well, the number of yards have gone into the road; they used a great many more yards than necessary.

Q. Where did they go?—A. They have gone into the road.

Q. Why do you say they were unnecessary?—A. Because if we increase the grades we get the same result.

Q. You were divisional engineer in New Brunswick?—A. Yes.

Q. Who was your district engineer?—A. C. O. Foss.

Q. Did the classification you adopted over there coincide with that which you have adopted here?—A. Very similar. They had not any material like this down there.

Q. You could take the plough test into consideration, could you not?—A. I took it into consideration everywhere.

Q. You only gave them earth there where they removed it by ploughing—where they used ploughs in the process of its excavation?—A. No, I could not say that.

Q. You just used your judgment?—A. Yes.

Q. And ignored the plough test, the same as you did here?—A. I never saw a plough test.

By the Chairman:

Q. Did they give you as high classification as they did here?—A. I think it is pretty uniform.

Q. Uniformity appears to be the governing principle?—A. If it is not, it is no good. If it is not uniform, something must be wrong.

By Mr. Gutelius:

Q. Uniformity in work of this character depends on what the first fellow classifies, does it not?—A. No, I do not think so.

(TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION: OTTAWA, FRIDAY, OCT. 25TH, 1912.)

Present: G. LYNCH-STAUNTON, Esq., K.C., *Chairman.*

H. S. BALKAM, District Engineer of District D of the Transcontinental Railway, sworn:

Examined by the Chairman:

Q. You are the district engineer in District D?—A. Yes.
Q. How long is your district?—A. About 400 miles.
Q. You have been district engineer ever since when?—A. September, 1911.
Q. Before that, you were where?—A. On different parts of the road.
Q. Do you know Mr. E. P. Goodwin, inspecting engineer?—A. Yes, sir.
Q. Did he visit your district lately?—A. Yes.
Q. Did you and Mr. Mattice and he go over a part or the whole of your district?—A. We went over all of it.
Q. You made an inspection of the line both east and west of Cochrane?—A. Yes, sir.
Q. And did you and he classify any portion of the line?—A. We changed the classification in one cutting.
Q. That is the cut at station 835-839?—A. Yes, on Contract No. 13.
Q. You were present when Mr. Mattice was examined and you heard his evidence and you made the inspection with him and Mr. Goodwin and do you agree with him in what he has said?—A. Yes, sir.
Q. Mr. Goodwin had two plough tests made?—A. Yes.
Q. The first was at Station 428, Mile 103, Contract 14, at Cochrane?—A. Yes.
Q. Will you tell me what he did and what you saw?—A. I was there at the plough test two or three different times. I saw them plough and scrape.
Q. Did it plough easily?—A. It ploughed fairly well.
Q. Did it plough with two horses?—A. Yes.
Q. And taken out with a scraper?—A. Yes.
Q. There was no outside assistance in the way of powder or anything else?—A. No.
Q. Have you examined the cross-section?—A. Yes.
Q. It is correct is it?—A. I assume it is, our own engineer did it.
Q. And you have no reason to doubt its accuracy?—A. No sir.
Q. Then he made the other plough test at Station 500, Mile 104, Contract No. 15, did you see that made?—A. I was there at least once.
Q. Did it plough as easily as the first one?—A. No, I do not think it did.

Q. They ploughed it all right and took it out with a scraper?—A. Yes.

Q. To the depth shown on the cross-section?—A. It was down about three feet when I saw it.

Q. Mr. Goodwin says: the first foot of this test was muskeg and clay, the next eighteen inches was a stiff clay, and the balance of that portion ploughed consisted of mixed clay and gravel, is that right?—A. Yes.

Q. He says: the whole was easily ploughed with two horses and the cut itself consisted of clay, mixed clay and gravel, mixed clay and boulders, and some mixed clay and sand; do you agree with that?—A. I do not know what the cut was; the cut was taken out long before my day.

Q. Is his description of the plough test correct?—A. Yes.

Q. He described the result of his inspection and knowledge of the country. the material, in four classes and he says that the clay which can be ploughed with two or four horses and which, when ploughed, breaks up into such a way as to make a good shovelling or scraping, do you agree with that?—A. Well, I would not agree with the word "good."

Q. There is some that can be done that way?—A. I say it can be shovelled or scraped, but I would omit the word "good."

Q. Then he says: 2, clay which can be ploughed but is either too tough or too soft for the plough to be of any use as a means of handling; in some cases the clay is too soft and sticky to allow horses to be used on it, and in other cases, it is so tough that although it could be ploughed it would still have to be cut with shovels before being removed; do you agree with that?—A. Yes.

Q. Then he says: 3, a quicksand clay which can be ploughed, but which runs together again almost immediately; this clay runs together so that it invariably has to be shovelled out of the cars or carts; do you agree with that?—A. Yes, there is that material there.

Q. Then he says: 4, mixed clay and gravel, some of this clay can be included under class 1, which as it can be easily ploughed and scraped or ploughed and shovelled, when a proportion would contain too much stone to allow it to be ploughed, do you agree with that?—A. Yes, with the exception of the word "easily."

Q. Now, Mr. Balkam, were those tests made by Mr. Goodwin fair tests, under the conditions which exist there now?—A. Yes.

Q. If you were sent to make the tests, would you make them in the same way?—A. For now?

Q. Yes, if I sent you up to-morrow?—A. Yes, they were tests in the conditions as they are now.

Q. What condition do you say the material was in where he made these plough tests and when he made them?—A. They are in the same condition as now?

Q. Can you describe it, was the stuff wet or dry, or hard or soft?—A. The one at 103 was dry.

Q. The other one?—A. The other was this wet clay that he mentions.

Q. Do I infer from what you have said, that in the cut at Station 428, Mile 103, the ground had been drained and was drier by reason of the building of the road, than it was at the time when the grading was done?—A. I was not there when the grading was done.

Q. Would you judge it was?—A. Naturally you would expect it would be.

Q. Am I right in inferring from what you say that at Station 500, Contract No. 13, the ground had not drained out there?—A. It has not drained out entirely dry.

Q. You say it was wet and sticky at that place?—A. A portion of it, along the line itself, at that place.

Q. Along the line itself was there any place where he could have better made the tests than where he did, or did he choose them fairly?—A. I suppose he did because it was much more convenient, the only place he could get seeing.

Q. Were they fair under the present conditions along the line?—A. Yes, they are fair tests of the conditions there to-day.

The witness was not further examined.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION, OTTAWA, JUNE 14TH, 1912.)

Present: George Lynch-Staunton, K.C., *Chairman*;
Mr. F. P. Gutelius, C.E., *Commissioner.*

Arthur Molesworth, sworn:

By Mr. Gutelius:

Q. You are an engineer of many years' experience?—A. About forty.

Q. You were employed on District C, of the N.T.R. from the time of the construction until when?—A. Until 20th August last.

Q. While you were in charge of District C, as district engineer the greater portion of the grading was performed?—A. Yes.

Q. And during that time you passed upon and arranged for the classification?—A. Yes, sir.

Q. So that it is fair to say that you were the responsible officer in connection with classification?—A. Yes.

Q. Under the chief engineer?—A. Yes.

Q. Were you responsible for the location and gradients?—A. Location; not for all of C., because part of it was given to me afterwards, but I was for all the old district C, which was first turned over to me. I went with them in 1904, before there was any location done at all.

Q. But it was all subject to revision, if you choose to revise?—A. Yes.

Q. What officer superior to you, if any, approved of your location and grades?—A. Well, the chief engineer.

Q. Did you get the chief engineer's approval to profiles and locations?—A. I think we always did.

Q. Make sure about this, because there is some question in my mind as to whether the chief engineer did actually approve of the grades and locations. So you remember of him signing your profiles?—A. Yes, I do.

Q. You think that signed copies are in your old office?—A. I do, or else they are in my office here. We turned the originals all over to MacPherson to be fyled here, and they gave us prints of them.

Q. And you think the originals that are fyled away here were approved by the Chief Engineer or MacPherson?—A. I think they were. MacPherson always went over them, and changed the grades in a great many instances—ordered us to change them. Sometimes we disagreed with him and fought it off, but he always did that.

Q. So that your profiles were criticized by the chief engineer's office?—A. Yes.

Q. I notice that the grade on portions of district C. is raised two or three feet higher than would be necessary to secure a uniform grade?—A. Yes.

Q. What was your object in raising the grades?—A. The chief engineer sent out what he calls his inspecting engineer, Macfarlane, and made him go over all my cuts, and he raised those grades. He got instructions from the chief engineer to go out and go over the grades.

Q. Macfarlane did raise these grades over these low places?—A. All the places that were raised was his doing. In lots of places I put the grades on carefully in my office, and he was sent down, and he came down to Mattawa when I was there, and went over every one of the profiles, and raised the grades in a great many instances.

Q. Did the G.T.P. engineer have anything to do with raising those grades as well as Macfarlane?—A. Not that I know of. Well, let me see—yes, he did; he was there too, Tomlinson.

Q. And those two between them agreed that many of the grades along those flat places should come up three or four feet, instead of being down 18 inches?—A. Yes, instead of where we had them. We had them where I thought they were right, but Mr. Grant sent him out to go over them with him; whatever he recommended I was to do.

Q. If those people had not revised your grade lines, would you have kept that roadbed as you had it?—A. I would have kept it as I had the grades on.

Q. Would it have saved very much money, compared with the work that was actually done?—A. Well, I think it would have saved a good deal.

Q. There are places there a mile long that might have been kept down two feet?—A. Oh, yes, it might be more; I do not know how much, but it might be more than two feet some places.

Q. I had our assistant engineer go over one residency, and he found that he could lower those grades, and keep above the muskeg at least a foot, and save $22,000 in ten miles. Does that look as though it might be possible? That is $2,000 a mile?—A. Well, I would have to figure a little.

Q. 5,000 yards to the mile?—A. Yes. How many miles did he say he could save $22,000?

Q. Ten miles?—A. That would be 50,000 yards.

Q. At 50 cents a yard it would be $2,500?—A. Yes.

Q. That looks reasonable to you as an engineer?—A. Yes.

Q. In the matter of wooden trestles, why did you not build some wooden permanent trestles?—A. I did. I built more, I guess, than anybody. I put them in several places towards White Fish, where I found the ground would not hold the bank, and 90 feet of muskeg or soft stuff, and I could not find any bottom, and I put in permanent trestles there. I put one in two or three miles west of White Fish, at Moberly Creek, and another little creek was 90 feet, and we could not get any bottom, and I made a floor of cordurov: and it had not sunk an inch till the day I left, but the ground had gone down on each side of it.

Q. Did you intend to leave that when the road was finished?—A. Yes, and the other one too. I found the bank began to open out, as if it was going to be a big sinkhole, and I stopped grading right off, and put in a trestle 600 feet long, drove piles, and made a permanent trestle. I thought it would last eight or ten years, and I thought the country would dry out to a certain extent, and we would know better what to put in.

Q. Where is that?—A. Three miles west of White Fish-Moberly Creek.

Q. Where is that?—A. About 80 miles east of Cochrane. The ground had sunk down there to a great extent, and they had piled in any amount of gravel there.

Q. Those were two special cases?—A. Yes.

Q. I want to ask you about the construction of wooden trestles generally on a railroad of that kind in that character of country?—A. Well, we built another one at another place. When I took charge of that work from Cochrane to White

Fish it was pretty near all graded under the supervision of D. and D. was turned over to me; but the grading was all done and the piers and abutments for the bridges in, but there was one there that was a very bad one——

Q. 1040?—A. No, that is not the one, but that is an awful bad one too; there was another one further east than that, quite a distance further east.

Q. If you had been building this railway on your own responsibility, would you have built many more wooden trestles to begin with?—A. I would, a great many.

Q. Why?—A. Simply because near the top of the ground there was a crust, and it appeared solid, and, going over that, you would think it was nice and solid, but as soon as you drove anything down 30 or 40 feet, the material down there was just like grey paint, and the further you got down the worse it got, and it pushes out just like paint, and if you build a short bridge over the little waterway, and then fill that in, it is going to push the crust down into that little mixture like paint, and it will bulge up and scatter all over the country.

Q. If you would build a trestle all over those places, and not attempt to fill them until the sun had an opportunity to dry it out, and the drainage got its work in, and then probably fill in six to ten years—what do you say to that?—A. I think so; that was my idea. That was my idea. That is the reason I put them in. That is the objection they made. "You will have to fill some time"; and I said "That is all right. I have had experience of that kind before". If you put ditches in and have it draining for some years, the country will dry out, and you will have an opportunity, and experience and time to judge what to do.

Q. Besides that, you would have saved a large amount of money on the total cost of that division?—A. Oh, enormous. Take the one place near Moberly Creek, and the place near the other little creek nearer White Fish than Moberly, Calamity Creek—that is the place I put that little short trestle and corduroy underneath. Well, the whole country went away down for 100 feet on each side of it; they kept pouring in gravel pits there before I left, and if a trestle had been put across that 1,000, or 1,500 or 2,000 feet, it is hard to say how much could be saved.

Q. But a large amount?—A. Yes.

Q. You are familiar with trestle 1040?—A. Yes.

Q. What position was that in when you took charge of the work?—A. It just looked like it does now. That pile of earth was away off on the side there. They had first put in a big arch culvert, and it had broken out and disappeared, and then they put in a square box 8 or 10 feet square to carry the water, and when I went there the bank was in there, and the water had raised up in the lake, and they had a syphon carrying it over the track.

Q. And they cut out a channel?—A. Yes; we cut out a channel and put in a big pipe there to carry the water.

Q. That is the way you left it?—A. Yes; it had only got that far when I left it.

Q. About how much money did you spend on it?—A. Very little; I do not know how much; just that corrugated pipe.

Q. What district engineer was in charge of that special structure prior to your taking hold of it?—A. Mattice was in charge for a while. Macfarlane had been in charge for a while, and he was made inspecting engineer, and then Mattice took charge.

Q. Who could tell us most about that structure?—A. Mattice ought to be able to. He was there all the time, either as assistant or district engineer.

Q. In the matter of classification, you instructed the divisional engineers in the matter of classification fairly early in the work?—A. Yes.

Q Were your instructions based upon a literal interpretation of the specifications—I mean to the letter?—A. No, they were not.

Q. Why did you not follow the specifications literally?—A. Well, there did not seem to be any specification to cover that material up there.

By the Chairman:

Q. The classification is covered by sections 33, 34, 35, 36 and 36a of the general specifications; you find that at page 39?—A. Yes, I know all about it.

Q. You had no trouble, of course, in classing solid rock excavation, had you?—A. Yes, they did have in some parts of the road, I think.

Q. Did you?—A. I did not, no.

Q. You did not, I suggest, classify anything as solid rock excavation which was not rock?—A. I did not.

Q. Did anybody else?—A. I understand they did on other parts of the road.

Q. Did you classify any clay as loose rock?—A. I did, yes.

Q. What clay did you classify as loose rock?—A. When I took charge of D. it had been nearly all graded, and they had been out and gone over it two or three times and classified it and when my work commenced the Grand Trunk engineer went over with me——

Q. Who was that?—A. Tomlinson, and we had quite a quarrel over the classification over the whole district. He thought I was not giving enough.

Q. When did you and Tomlinson go over it?—A. Two or three years ago.

Q. Can you fix the date?—A. I cannot remember right now.

By Mr. Gutelius:

Q. Who else was in the party?—A. The representative of Foley.

By the Chairman:

Q. Swanson?—A. Yes.

Q. Swanson and Tomlinson went over the line?—A. Yes.

Q. There was only one trip of that kind?—A. Yes, we went over the whole of my work. At that time I did not have charge of D, you know.

Q. Over what portion did you go?—A. I went from the Quebec line east about as far as the work was graded, about the Harricanaw river, with Tomlinson and Swanson.

Q. At that time was the grading all done?—A. No, but there was a good deal of it done, and there was a great deal of dissatisfaction, and the men would not stay; they could not possibly do the work. When I first commenced I was giving them pretty small estimates in their estimation.

Q. Where did you first commence to classify?—A. How do you mean?

Q. What district and what part?—A. On C. from Quebec east.

Q. To the Harricanaw River?—A. Yes.

Q. How did you classify the clay at that time?—A. When I first commenced I just classified it as earth.

Q. You classified all the earth between those two points in the beginning, so far as you classified it at all, as earth?—A. Yes; in some instances there was a layer on the bottom, it was like gumbo; I gave them about twenty per cent, or something like that, of loose rock. There was no other classification. There should have been another classification.

Q. How long did you continue to classify this clay as common excavation?—A. I do not remember; two or three months; and then we took this trip over the line.

Q. Did anybody raise objection to your classification?—A. Yes.

Q. Who?—A. Tomlinson, for one.

Q. And anybody else?—A. The contractors—Swanson.

Q. Then, as a result of that, did the three of you go over the district?—A. Yes.

Q. When you went over the district, what occurred on that trip?—A. We looked at each cut and dug into it with shovels and examined it, and we decided on the percentage that we should give of loose rock.

Q. What percentage did you decide on?—A. We did not decide on any special percentage. We would give one thirty per cent and another one fifty, and so on, according to how bad the material was. I took the shovel and dug into it myself, and I had a very heated dispute over every cut with them. They wanted a great deal more. They said they got a great deal more on D, and I said I could not help that, that I was giving more than they were really entitled to, that on a literal translation of the specification I doubted whether they would be entitled to that.

Q. You thought in the first place they were classifying it correctly as common excavation?—A. Yes.

Q. Had you seen it then?—A. No, I walked over the ground before it was graded. It just looked like any common earth. A person making a survey and running the line there would put that down in his mind as ordinary common excavation, but after you see the work you see the difference; in fact some of it is more costly to do than any loose rock.

Q. Did you take into consideration the cost of excavating in revising your classification? You have said just now that they could not make pay out of it?—A. Yes.

Q. Did you take into consideration the cost of excavating when you revised it?—A. Well, yes, I suppose we did; that was the general expression that everybody made, that they cannot possibly do that work for the price.

Q. Who was doing the work? Station men?—A. Contractors—yes, station men.

Q. Did you know what they were getting?—A. No, I did not, but we used to keep force account of all the work done by the contractors.

Q. Why did you keep a force account?—A. To know what the work was costing us.

Q. What was that work costing the contractors to get it out—that clay?—A. Well, it was costing over 60 cents in some places.

Q. Not if they were letting it to station men, was it?—A. Oh, yes. Some of those station men did not come out with anything.

Q. But the stationmen were only getting 23 cents for common?—A. Yes.

MR. GUTELIUS. 23, 36 and $1.30.

By the Chairman:

Q. The station men were getting 36 for loose rock?—A. Well, of course I did not know what they were getting.

By Mr. Gutelius:

Q. But if they were receiving wages, the amount of labor that they put on the taking out of this clay would raise it to what you say, as much as 60 cents?—A. Yes. In some cuts it was that much and over, and when they came to be settled up with they had not anything coming to them, and Swanson, in many instances, would give them a dollar a day apiece for their time.

Q. Because their prices were too low?—A. Because their prices were too low for that kind of work. The work was more expensive to do than loose rock in a great many cases, and when they came to settle there was nothing coming to them, and he would give them a dollar a day. Of course it came from the company. I know of two or three cases where he gave the Russians a dollar a day for every day they worked in the cut.

Q. Even though they were in arrears on their contract?—A. Yes, and there was not a cent coming to them.

Q. Was that not the reason, when he told you these things, that you were inclined to raise this classification?—A. Well, I raised it more because it had been done on all the other districts before. At first I would not do it, because I did not believe that that clay was as bad as it was, until it was opened up. When I found it had been done on the other work, and accepted by the chief engineer, I supposed it was right to do it. There was no specification to cover that material. Common earth does not cover it. It should have been gumbo, or something like that. There was no specification to cover it, and I thought we were supposed in that case to use our own judgment as district engineer.

Q. Who told you what other districts were classifying?—A. The divisional engineers on the other work. I never estimated as high as the rest of them did in some places.

By the Chairman:

Q. What made that clay difficult to remove? Was it too hard, or soft, or what? Was it because it was too hard or because it was too soft?—A. It is the most awful stuff to take out I ever saw. It gets sticky. It is very hard and it is like rubber, and the mud is awful, and it slides. It gets into a nasty puddle like paint.

By Mr. Gutelius:

Q. Like mortar?—A. Yes, and sometimes, when you put it in the bank it would run away across the railway right of way. Some of it we could not use in the bank; we had to just waste it.

By the Chairman:

Q. You classified it as loose rock, whether it was soft, or whether it was hard, did you not?—A. Oh, no.

Q. Was it the hard stuff you classified as loose rock, or the soft stuff?—A. It is the hard stuff.

Q. Did you classify any soft clay as loose rock?—A. Well, this hard stuff, when they dig it and begin removing it out in rainy weather, it would get nasty and sticky, and soft, like mortar. We only gave a certain percentage in each cut.

Q. How deep did you consider the common excavation went, averaging it?—A. We would come along to each cut, and spend quite a time looking at it, and take a shovel and dig into the sides of it, and find where the hard material came up to, and measure from the top, and give them a percentage.

Q. Did you cross-section any of those cuts, or were they cross-sectioned?—A. They were cross-sectioned before the work was done.

Q. They were cross-sectioned for the purpose of finding the contents?—A. Well, we just measured down.

Q. They were cross-sectioned to find how much material was to come out of the cut?—A. Yes.

Q. Were they cross-sectioned to find how much common excavation was in it and how much loose rock was in it?—A. No.

Q. Was that ever done anywhere?—A. No, that would be very hard to do.

Q. It was never done?—A. No, I tried to do it on the start. I gave instructions to all the engineers to do it on the start, because I thought something like that would come up and we should have those figures, but it seemed almost impossible to do it, and we gave a percentage.

Q. It never was done?—A. We would go out and look at a cut and give a percentage.

Q. The way you arrived at the amount you should allow as loose rock was by estimating a percentage?—A. Yes.

Q. Not by cross-sectioning the cut?—A. No.

Q. So that on the whole district that was the practice followed, to estimate what percentage should be common excavation and what percentage should be loose rock?—A. Yes. At first I sent them a circular, and I insisted on having a clearly-defined line between the two, if possible. But they all declared it was impossible.

Q. It would have been giving them some more money, would it not?—A. Well, it would not be so much work.

Q. When they came to solid rock excavation, did they cross-section the solid rock?—A. Yes.

Q. If you found in a cut common excavation, loose rock and solid rock, do I understand you that the solid rock was really cross-sectioned?—A. Yes. It is more clearly defined than the difference between the two clays. It is highly perceptible.

Q. Was there any solid rock estimated?—A. In what way?

Q. Estimated instead of measured and cross-sectioned?—A. Repeat that.

Q. Was there any solid rock excavation estimated, or was it all cross-sectioned and ascertained in that way?—A. Oh, all cross-sectioned in that way.

By Mr. Gutelius:

Q. By actual measurement?—A. Yes.

Q. But you were unable to find a line of demarcation between common excavation and loose rock and for that reason you made a guess at it?—A. Yes.

Q. And called it a percentage?—A. Yes.

By the Chairman:

Q. Did you allow any muskeg as loose rock?—A. No, indeed.

Q. Do I understand you that you did not allow as loose rock excavation any material which, before it was exposed to the atmosphere or to the rain, was soft?—A. No, any stuff, what we considered common excavation—

Q. No, but there is a lot of that clay, plastic and soft; did you allow any of that?—A. It got soft after it got wet sometimes.

Q. You mean you only allowed indurated clay as loose rock?—A. That is it exactly. I went over every cut with a shovel myself.

Q. I was told you had allowed a quantity of soft clay, not indurated, as loose rock?—A. Well, I did not, that I know of.

By Mr. Gutelius:

Q. Robertson told us that you advised him in the beginning to keep the classification away down; is that right?—A. Yes; that is what I told you a little while ago.

Q. Robertson also advised us that he classified soft clay in the bottom of those cuts, which is like gumbo, as loose rock; did you know that he did that?—A. I do not call clay that is like gumbo as being very soft.

Q. Those are his very words, "The very soft, this blue clay we get in the bottom of those cuts, some of them, is like gumbo: I classify that as loose rock also"?—A. He was always telling me how hard this rock was that he classified, and on any cuts I went over with him he never classified any soft clay: it was all very hard to excavate. In the Canadian Pacific years ago we used to have a classification for gumbo—in the Northwest on the C.P.R. in the old days.

By the Chairman:

Q. You did not classify any material which you considered soft material as loose rock?—A. No, sir, not to my knowledge.

Q. Give me, if you can, what percentage of the clay you considered generally throughout that district, should be classified as loose rock?—A. Well, it was different in different cuts. We did not classify any two cuts the same.

Q. Could you give me any idea what percentage you think it would run?—A. I do not remember. Robertson would have those figures.

Q. Is it not all the same class of material?—A. Very much the same—no, the cuts are very different; some of them would be hard up from the bottom for two or three feet, and some would be hard nearly up to the top—just a couple of feet on the top.

Q. Would it not be quite easy to remove the soft and cross-section the hard?—A. It would be a hard job.

Q. Why should it be any harder than to cross-section in solid rock excavation?—A. Well, it has never been done anywhere, and all D was done when I commenced my classifying that material, and I followed the same system they had, after I found we could not very well do it.

Q. My impression is, from the evidence which has been given—and my impression may be wrong, because I have not reviewed the evidence yet—that they gave nearly 90 per cent of that clay as loose rock excavation?—A. They did in some cuts.

Q. But nearly all over?—A. Oh, no, not on my district. They gave 100 per cent in some of the others—at least, I heard they did—but they did not on mine.

Q. Do you think from what you saw that they could fairly give 100 per cent anywhere?—A. I did not see any on my district.

Q. Did it not seem to you, roughly speaking, that the clay which could be affected by the frost—in other words, down to the frost line—should be common excavation?—A. How do you mean?

Q. The frost goes down into the earth in that country some three or four feet?—A. Yes.

Q. Would not the frost break up the clay as far as it went down?—A. No, it did not seem to.

Q. You do not think so?—A. No.

Q. Because as soon as it is exposed it crumbles all to pieces. How did they take out that clay?—A. They would blow a good deal of it, with powder.

Q. Is there any cut in your division they used powder continuously?—A. In the big cuts they did.

Q. Was it continuously?—A. I have seen it along there.

Q. Do you think you are right about that, or are you only speaking from recollection?—A. I may not be right, but I think I am.

Q. The records will show?—A. They ought to. Then of course we do not always give people loose rock where they use powder. I have seen them use powder in lots of cuts to shake them out, so that they could dig them easily. With a forty-foot cut they would put in black powder, and shake it up.

Q. In that country could that clay be ploughed?—A. No, it could not.

Q. Did you ever see it tried?—A. My gracious me, you could not put anything in there to plough it.

Q. Why?—A. Because they would stick in the mud and could not move.

Q. They would get mired?—A. Well, they would get mired, and I do not know whether they could plough it. I do not think they could. It is tough like gumbo.

Q. The top never was tough; they could plough the top?—A. I do not think they could plough it.

Q. You did not approach it from that point of view, whether it could be ploughed or not?—A. Oh, yes, I had many arguments with them about it. I thought it could at first myself, and I had many an argument with contractors and engineers about it, and we came to the conclusion it could not.

By Mr. Gutelius:

Q. Do you think now all of the loose rock classification in those clay cuts that was given under your charge was too hard to be ploughed?—A. I do not know whether it was too hard to be ploughed. I think it was impossible to plough it, or to get the horses in there to plough it.

Q. But supposing that the horses were taken care of on a corduroy, and they were just ploughing a single furrow, would all the material that was classified as loose rock be too hard for them to break up?—A. Well, I do not know.

Q. Did you try to get the difference between common excavation and loose rock such that this test would prove out?—A. Well, they never could get in there to plough it. Now, take on the top, there was about a foot on the top, a different line of earth altogether, and a foot down it was different; some parts we just gave them two or three feet at the bottom; in others it went up nearly to the top. I was very particular in digging into the cuts in every instance where I decided what we should do, and Tomlinson. the district engineer for the Grand Trunk. representing them, wanted a great deal more than that allowed. but I would not give it to them.

Q. Tomlinson really advocated increasing it?—A. Oh, my—why once or twice he said, "Why if you don't do better than that I am going right home, I won't go over the line any more"; and I said, "I cannot help that; I cannot give you any more; I think that is plenty."

Q. It has been said that one cubic yard of muskeg put in a fill originally is worth about half a cubic yard when traffic gets on it?—A. I have no doubt. I had experience of the worst muskeg that was ever on the C.P.R. I had charge of that. They thought they would have to pile that first, and I proposed that big ditch 90 feet from the centre.

Q. But the muskeg does settle?—A. The bottom of the big ditch kept coming up, and we kept putting that in, and it kept coming up.

Q. What do you think of muskeg material for making fills, where the ground under the embankment is reasonably solid?—A. Well, you would have a nice back; it makes a nice roadbed.

Q. But it is more expensive?—A. Yes. I believe some of those muskegs you can squeeze up to less than a third.

Q. To a third of the original amount?—A. Yes.

Q. Are you familiar with momentum grades?—A. Well, we had a lot of them down south.

Q. What saving could have been effected on your division if you had used momentum grades in a general way?—A. Do you mean for a permanent thing?

Q. No, in original construction, could you have saved as much as ten per cent. on the grading of your division if you had used momentum grades?—A. Yes, I believe we could and do better work. You see in getting the line on a four-tenths grade, a continuous long grade as they insisted on you had to have such high banks, a bank nine or ten or twelve feet high for a mile. You put that in there, and it kept going down—

Q. Which would not have gone down if you had introduced the sag within the limits of a momentum grade?—A. Yes. We would have saved a lot of trouble and expenses.

Q. Why did you not introduce momentum grades?—A. Well, I wanted to introduce them in one or two places, but they said they would rather have—

Q. Who is they?—A. Mr. Lumsden; I am not sure who it was, whether it was he or the inspecting engineer. I just mentioned it one day, but they would not hear of it.

Q. But if left to yourself you would have introduced some sags as momentum grades?—A. Yes; in the roads down south I did that in every case.

Q. There was a rumor passed that indicated to the commission that you were not on that work often enough to keep in close touch with the grading; what do you say to that?—A. I think I was on the work more than any district engineer that is on the road from one end to the other, and knew every foot of it better. At one time the commissioner told me I was going out on the road too much, to send my assistant, that I ought to stay home and look after things, and not be going out on the road so much. That was Mr. McIsaac spoke to me.

Q. I wanted you to say that to contradict some information we had to the contrary?—A. That is a mistake altogther.

Q. I do not want to leave this with a wrong impression in connection with the action of Mr. Tomlinson on that trip when you increased the classification. You indicated to us that Tomlinson was clearly anxious—and an advocate—to raise the classification over what you had made it originally?—A. Yes.

Q. And wanted to make it still higher than you finally made it?—A. Yes.

Q. You are giving me that without any mental reservation at all?—A. Yes, he was very indignant because I did not raise it higher.

NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATING COMMISSION.

Before: Mr. George Lynch-Staunton, K.C., *Chairman*, and Mr. F. P. Gutelius, C.E., *Commissioner*.

(Evidence taken on the train, at the boundary between Ontario and Quebec, June 20th, 1912.)

C. O. Foss, sworn:

By Mr. Gutelius:

Q. How old are you?—A. Sixty.

Q. How many years have you been in charge of responsible railway construction?—A. Most of the time for 25 to 30 years.

Q. What were the largest railway jobs that you had during that time?—Give four or five?—A. About the first construction work I did was the road from Dallas to Cleburn, Texas, in 1880.

Q. For what company?—A. The Texas Trunk.

Q. What next?—A. I built a piece of road in Iowa, known as the Desmoines Osceolla and Southern, from Desmoines, Iowa, down to pretty near the Missouri boundary, to a place called Kingsmere, and I was on the location of the Wisconsin, Iowa and Nebraska, from McGregor southwest to Kansas City. I had malaria fever shortly after that, and had to leave the west, and went to Nova Scotia in 1883.

Q. What next?—A. I was on the construction of what is known as the Nova Scotia Central.

Q. On the Nova Scotia Central you were in responsible charge of a portion of the work, or all of it?—A. All of it.

Q. As chief engineer?—A. Yes. After it was built I operated it as Superintendent of Maintenance of Way for a while.

Q. The same road?—A. Yes, and then Mackenzie and Mann bought this road, and I worked for them, and had more or less to do with the ballasting, ties and timber. They built from Halifax round the south shore.

Q. That is for Mackenzie and Mann?—A. Yes. I left there in 1904, and came to the Transcontinetntal as chief of a party on preliminary surveys, in the fall of 1904.

Q. What portions of the line?—A. I made a preliminary survey of what is known as the river route from Fredericton, about 40 miles towards Woodstock, meeting Gard and party 23 miles below Woodstock; and then I came to Edmundston in the preliminary, from Edmundston to Grand Falls, and I went out near Boiestown, south of Boiestown, and ran practically over the ground that we located and built on to Napadogan, and so on, to the southeast of the Miramichi, where we crossed it now, and traversed up the ice, and made two or three trials to get over that summit. First I tagued it, and then Mr. Westbrook came upon the line. About that time I was appointed assistant district engineer, and took charge of the survey generally under Mr. Dunn.

Q. As assistant district engineer you had charge of the location under Mr Dunn?—A. Yes.

Q. And assisted him in starting out the construction parties, and finally succeeded him as district engineer?—A. In 1908, yes.

Q. The specifications for this railway in the matter of classification differed from other specifications that you worked under?—A. Yes, in some particulars.

Q. What is the principal difference?—A. Well, we had generally only made two classifications, sometimes three; but solid rock and everything else was used on the Halifax and Southwestern.

Q. How many classifications did they use on those American roads?—A. We usually had prairie excavation and sometimes gumbo, a hard material called gumbo; very little rock on any of those western roads I was on; in fact, there was none.

Q. So that the first specification that you worked on that had these three classifications was the N.T.R. specifications?—A. Yes.

Q. Do you remember the prices paid on the Halifax and Southwestern for rock and for other excavation?—A. My recollection is that rock was $1.30 and everything else 40 or 45.

Q. On this work did your resident engineers keep a force account?—A. Yes.

Q. Which was reported through to you?—A. Yes, and through to Ottawa.

Q. So that you could figure fairly closely the cost of various cuts?—A. Yes.

Q. You also received report covering the amount of powder used in each cut?—A. Yes.

Q. The matter of classification of your district, I understand, was one of controversy from time to time?—A. Yes.

Q. Were your original ideas of classification the same as you are now classifying?—A. Practically.

Q. If you had taken the specifications as they were given to you and classified the work, without any instructions from superior officers, would your classifications have been the same as they now stand?—A. I think so.

Q. What I am trying to reach is whether your personal ideas coincide exactly with what you are doing now?—A. Well, take this last contract, for instance; in 1907 a considerable amount of this work was done.

Q. Prior to your taking charge as district engineer?—A. Yes. Mr. Dunn went over the work in the autumn of 1907, while I was temporarily in district E, and graded up the classification, I think, and it remained on about the same basis for a while. I may say that in 1908 he had left, and he came back again as inspecting engineer for the Grand Trunk Pacific, in the summer of 1908; he

stayed until the spring of 1909, and they transferred him to the west, and shortly after sent Mr. Boullion, and he then took exceptions to some places, some fill on contract 4; quite a good many on contract 5—all this assembled rock question, and that, and some of the loose rock classification on contract 6.

Q. Who is the contractor for six?—A. Lyons and White. Then it was that I said I thought it would be better to refer the whole thing to the Board of Arbitrators that had been appointed for that purpose, and it was done.

Q. This Board is composed of whom?—A. The chief engineers of the G.T.P. and the N.T.R., with Mr. Schreiber as umpire.

Q. What did they do?—A. Before the arbitrators came at all, Mr. Grant and Mr. Woods came down and settled some, perhaps a dozen places, straight give and take agreement, and they got into a dispute, they had a misunderstanding in some way over it. Mr. Grant said Mr. Woods had agreed to a certain thing, and Mr. Woods said he had not; anyway they got into a dispute, and they quit, and Mr. Grant went back to Ottawa. That was last September, I should think.

Q. That was to settle the objection raised by the G.T.P.'s inspecting engineer, Mr. Bouillion?—A. Yes, and then in November the Board of Arbitrators came down and went over the balance of these objections.

By the Chairman:

Q. We want to know whether the G.T.P.'s objection was that the classification was too low or too high?—A. Too high.

By Mr. Gutelius:

Q. The objections raised by Mr. Boullion that the classification was too high did not apply to the G.T.P.'s contract?—A. Well, he made no objection on contract one, which was theirs, the first fifty miles; nor on contract two which was McMannus's, nor on contract three, which was also theirs, from Chipman to McGibbon; he did not raise any objection on that forty miles, and then on contract 4 he raised objections in ten or a dozen places, I suppose, here and there. Then on contract five he objected to all those places where any assembled rock had been allowed, and a few places where he thought too much loose rock had been allowed, and then on contract six, all the places where assembled rock had been returned, and a good many places where he claimed too much loose rock has been returned.

Q. Did the arbitrators cover all of those points?—A. All of the objections that were standing. I may say between him and Woods, they withdrew their objections in several places on contract 6.

Q. That was a G.T.P. contract?—A. No, that is Lyons and White; that is the last contract; it comes right here to the boundary. After Grant and Woods had this misunderstanding I suggested to Woods that he and I go along down the line, and see if we could not settle some of these places, and I said "Now, if there is any of these places that you, on looking this thing over, think are all right, say so, and we will check them off". He did. In quite a few places he thought the objection was not serious, better withdraw it; so they did, and then the residue of this was summed up in what the arbitrators came and went over.

Q. Did the contractors themselves know anything about this arbitration?—A. Oh, yes.

Q. Were they satisfied with the findings, or have they accepted them?—A. Well, they were not satisfied. They have not made any move to test it, that I know of.

By the Chairman:

Q. You might state first, whose were the different contracts on your section; start at number 1?—A. Number 1 was G.T.P.

By Mr. Gutelius:

Q. Extending from where?—A. Moncton to Mile 50; two was J. W. McMannus & Company, from 50 to 58. Three was G.T.P., from 58 to 98—forty miles; and four, from 98 to 164 was G.T.P.; five, from 164 to 195 1-2 was Kitchen & Company; and six, from 195 to 256 and a fraction was Lyons and White.

Q. In our examination of Moncton yard excavation, we noticed that the hard material on the south side did not extend closer to the surface than 18 to 30 inches, and on the south side, where a steam shovel was working, the soft material seemed to go down from three to five feet; does that seem about right to you?—A. Yes, as it showed there.

Q. What do you say about the depth of the soft material over that whole yard?—A. I should think it would average perhaps 2 1-2 feet.

Q. Do you think the material as classified in the estimate will bear that out, and, if it does not, should it?—A. Yes, about 25 to 30 per cent, I think. The cutting is an average of something like nine feet.

Q. If the plough test were applied to the surface material, you would expect it to show about 30 inches to three feet?—A. Somewhere about there: two or three feet.

Q. And that proportion would be common excavation?—A. Yes.

By the Chairman:

Q. Is there a borrow pit?—A. Not in the yard. There is a borrow pit up above about a mile.

Q. Was there not an amendment to the common excavation paragraph, 36 and 36a, "No classification other than that of common excavation will be allowed on material from borrow pits, except by order in writing of the engineer"?—A. Yes.

Q. Was there an order in writing given for common excavation out of that borrow pit near Moncton?—A. I could not say, I am sure, whether the engineer in charge gave an order—you mean notice to the contractor?

Q. Yes; I understand there is a borrow pit about mile 2?—A. Yes.

Q. Was there any payment made above ordinary train haul for material taken out of that borrow pit?—A. No, that was not train haul at all; that was straight into that big fill, and it was classified probably about the same as the yard there.

Q. Was there an order in writing to classify it?—A. I could not say about that. It would mean, technically, that, while he required an order in writing, if he verbally told him he could borrow there, it is usually done.

Q. If he verbally told him, he would get nothing but common for it; do you see that? Have you considered that?—(No answer).

By Mr. Gutelius:

Q. If a written order was given to the contractor for borrowing material from the pit at mileage 2, where about 66,000 yards of material was removed, you will send us a copy of that order?—A. If it was given, it would probably be given by the resident engineer or Mr. Balkam, the divisional engineer.

Q. You will undertake to procure that and send it to us?—A. Yes.

Q. In this connection, I would like you also to advise us of all classified borrow that was not ordered in writing by the engineer?—A. All right.

Q. At mileage 16 there is a cutting 4,000 feet in length. (Profile shown witness). The classification shows loose rock 5186, common excavation 8642. The material has the appearance of common excavation from the plough test idea, from two to three feet thick over that cut. Do you remember the material?—A. Not specially, no.

Q. If you find in a test that there is three feet of loose material on that cut, would not this classification appear to be too high?—A. Yes, if there was three feet all the way on that cut it would make a greater difference than what is shown there.

Q. Referring to the profile, mileage 26 to 28, would it have been possible to have lowered the grade, without interfering with the maximum gradients and saved some money?—A. Yes; this grade could be lowered for a mile and a half and some saving could be made.

Q. Can the engineers at Ottawa figure this approximately correctly?—A. Approximately, yes.

Q. The cross-section is fairly level?—A. Yes.

Q. There is a similar profile between mileage 30 and 31?—A. Yes, I see it.

Q. Say 30.3 to 31; could that receive the same treatment?—A. That maximum grade would have to be got through the shallow cutting all the way. Whatever you dropped the grade between mileage 30.3 and mileage 31.3 would have necessitated additional cutting at the top of the grade at 31.3.

Q. Could not the material taken from this cutting west of mileage 31 have been used to the east in that cutting?—A. Yes.

Q. So that a net saving might have been secured without increasing the gradient?—A. Without increasing the gradient, yes.

Q. With your experience as an engineer, and knowing that there are a number of such places on your district, why did you not lower these grades?—A. Well, in some cases, I do not know whether that particular case or not, the grades were put on at Ottawa; sometimes they were changed there, anyway, and the idea held out was to keep the line up clear of snow and water.

Q. Can you give us a definite reference to any instructions from the Ottawa office to keep these grades up?—A. Well, I won't answer that; I won't undertake to say that I can, but when I go into the office and look over the correspondence, if I can find anything I will produce it.

Q. You are quite sure in your own mind you did have such instructions?—A. I know the grades were changed in Ottawa in some cases, but I cannot say just which they applied to, whether they applied to that particular case or not.

Q. Were profiles generally approved in Ottawa before you started the work?—A. Always.

Q. To what height do you consider it is necessary to keep the top of the tie above the surrounding country, when there is no other influence for protection against snow?—A. Oh, say two or two and a half feet. Of course more would be better in heavy snows, but in ordinary snows that would enable you to clear the line easily.

Q. That would mean that the grade line shown on your profile should be, at least, a foot above the surrounding country?—A. Yes.

By the Chairman:

Q. Is that for snow or water?—A. That is for snow alone.

By Mr. Gutelius:

Q. What do you say about water?—A. Well, if it was a wet place, where it was likely to be flooded under very heavy rain conditions, I would like to have it up two or three feet above the probabilities of water.

By the Chairman:

Q. That last answer applies only to districts that are liable to be flooded?—A. Sure.

By Mr. Gutelius:

Q. Referring to the muskeg cut at mileage 36, the information I have shows that some of this muskeg was classified as loose rock?—A. Yes.

Q. And I understand you are making some change in that?—A. Yes.

Q. Is this change in harmony with your personal ideas as to classification?—A. Well, I think that material was really more expensive and difficult for a contractor to handle than many other places that would easily be classified as loose rock.

Q. Do you feel that you are justified in allowing the cost of moving to influence you in a classification?—A. I think every engineer in the world is influenced somewhat by that.

Q. But by adherence to the specification literally—A. If a contractor was obliged to move that with scrapers or carts or ordinary teams that were used when that specification was made 30 or 40 years ago, it would be a very difficult matter, because that was a mush of water and mud—black mud. The only way he was able to get that out was by working under it with a steam shovel. If he had to go on top of it with teams it would have been practically out of the question. He could not handle teams on it at all.

By the Chairman:

Q. The specification provides that only such material as cannot be ploughed —that means that it is too hard to plough—indurated clay and other materials—shall be classified as loose rock?—A. The inference, of course, is that that means that the material is too hard to plough; but if you could not plough it at all, if you could not get horses on to it to plough it, would it not still be material that could not be ploughed.

Q. Do you consider if it is too hard to be ploughed or too soft to be ploughed, that it is loose rock?—A. If you take the broad view——

Q. Which view do you take?—A. Let me make an explanation. If you take the broad view that this specification is to cover material, not necessarily because it is too hard, but because it is difficult to move, then I think it would apply to muskeg mud—It might apply. If you say strictly that this must be so hard that you cannot plough it, and that is the meaning of the specification, then muskeg, mud and quicksand, and all this sort of material that is more expensive to handle than ordinary loose rock material, would have to be classified as common excavation.

By Mr. Gutelius:

Q. To whom do you look for correct information as to how broad or how narrow the specification should be construed?—A. Well, if it is a matter of doubt and opinion, you have got to refer to the chief, of course. You have to be governed by his direction, no matter what your opinion may be. The chief ordered me to cut that out—to cut out all the muskeg material in the district.

Q. Some of the muskeg which has been excavated was wasted?—A. For the simple reason that you could not put it in a bank of any size and hold it there.

Q. Why did you take it from beneath the grade line and waste it?—A. From beneath the grade line?

Q. Yes, in that dug out place?—A. You mean over where it was taken out and refilled?

Q. Yes?—A. Well, the grade had to be kept down low, in order to keep a length of siding there, and if we had put ballast on top of that muskeg, it would simply have mushed right down, the ties would have gone right down into it.

Q. Explain why you dug out muskeg below the grade line and filled in again at the several points which we noticed along the line?—A. Because I believed that that was good construction.

Q. Did you ever do it on any other railway?—A. Oh, yes, where there was only a small amount of muskeg like there was in those cases, two feet or so.

Q. Did you ever do so much as that?—A. Where there was any considerable depth of muskeg with a very light fill, I would cross-way it, but that would cost a great deal more money in a case like this than to remove the little depth of muskeg.

Q. You wasted this muskeg, and you knew what expense you were undertaking to make this solid roadbed, and considered that it was good construction?—A. Yes.

Q. Was it necessary?—A. I think it was.

Q. Would it have been necessary under Mackenzie and Mann's construction?—A. I have in some cases put a light roadbed on a thin layer of muskeg, and I always found it coming up through the ties and through the ballast, sooner or later.

Q. Supposing I told you that I have seen 30 and 40 miles of muskeg embankment made, and track laid on it, and operated over nine months?—A. You would get that up where it would be dry.

Q. On this railway?—A. You would get that where it would dry out. That is different from putting it down on the flat where it lays.

Q. Then you do not think this would have dried out?—A. I do not think so.

Q. Where you see it on the bank there now you can walk over it?—A. Yes, because it is piled up and exposed to the drying effect of the weather.

Q. Would not the weather have had the same effect on it in banks?—A. This is not in a bank; it is putting the ballast on it down inside.

Q. It makes a very expensive railroad, does it?—A. If you have any amount of it to remove. In places we removed it in those roadbeds there was only about a foot and a half or two feet.

Q. Have you any idea how much muskeg you wasted?—A. On the roadbed.

Q. All waste muskeg not used in fill?—A. Exclusive of mileage 36 cut that we had to take it out, there was very little wasted.

By the Chairman:

Q. Did you not put in some of this muskeg in some fill somewhere?—A. If we did, it ran out.

Q. Did you not put in some?—A. The only place we used any muskeg in a fill and kept it there, was in a small place along mile 26, 27 or 28. We cut some ditches on the side and made a small embankment, such as you speak of in the west, and we covered it with ballast, top and sides, a couple of feet thick.

By Mr. Gutelius:

Q. Referring to the same cut at mileage 36, I notice there is 60,000 yards of loose rock returned?—A. Yes.

Q. The muskeg is included in that figure?—A. Yes.

Q. The remainder of the cut struck me as though it contained a larger percentage of common excavation than the 88,000 yards shown. You remember the material?—A. Yes.

Q. Don't you think there was a greater quantity of that clay which was ploughable?—A. Very little, outside of the muskeg.

By the Chairman:

Q. Is there any rock there at all?—A. Yes.

Q. Whereabouts is it?—A. There was considerable rock in the bottom of the cut and those big masses you saw in the bank all through it.

Q. There is 4,000 yards of solid rock?—A. Yes.

Q. Did that consist of boulders?—A. Some solid rock in the very bottom, and those big boulders, those big masses you saw on the side going up all through the cut.

Q. What became of them?—A. They went into the fill.

Q. Do you think that is a fair amount of solid rock?—A. Yes, I should think so.

Q. Half as much as the common?—A. I should think so.

Q. Refer to mile 59. In the cutting just west of this mile post we find a reddish clay which had the appearance of being the same material in the matter of consistency or hardness that we moved by picking in the Moncton yard. The classification of this cut shows 600 yards solid rock, 6,800 loose rock, and 811 yards common excavation. The length of the cut indicates that if a two or three foot blanket of common excavation were allowed that the quantites would be very much increased; do you remember the case?—A. Yes, I remember it.

By the Chairman:

Q. If you find the material in this is similar to that in Moncton yard, do you not think that the common should be increased and the loose decreased?—A. That is, if there was 2½ feet taken off, do you mean?

Q. Yes?—A. I do not know just how that would work out.

Q. Don't you think that the material is the same?—A. It would be in the proportion, I think, of about 70 to 30.

Q. What does that mean?—A. 70 per cent loose to 30 per cent common.

Q. Do you speak from recollection that that would be proper?—A. I am not saying whether it would be proper. I am saying if they found there was three feet of that that would be it.

Q. Take the fill at 60.6; do you know if that fill was made full width originally from neighbouring cuts?—A. I think it was, yes.

Q. A large amount of train fill, however, was necessary to put it in its present condition?—A. Well, it sloughed down at the sides there and settled the top.

Q. Did this sloughing amount to very much on your whole district?—A. Quite a good deal.

Q. And every yard that sloughed required train fill?—A. For the most part, yes.

Q. Did that item amount to very much in the total cost of the work?—A. I could not undertake to say how much offhand.

Q. Was it a serious item in the amount of train fill yardage?—A. I should think it would represent altogether probably 50,000 or 60,000 yards.

Q. At mileage 62 there were borrows on the north and south sides?—A. Yes.

By the Chairman:

Q. Why was there so much loose rock in that, do you remember?—A. It was scraping right on the solid rock.

Q. But you did not take any of the solid rock out?—A. There was a little taken out, which I told the officer the other day. I pointed out to him that here it would have to be cut out.

Q. You have ordered him to take out the solid rock item?—A. Yes, I have ordered him to.

Q. How much is it?—A. 647 one place and 8 yards in another place. I will tell you what they did really. They came on to a thin layer of sand stone, and they took it out, and then went on and took out some more material that was not solid rock under that. The whole thing was only about two to three feet and a half in depth, but they took this all out and classified 647 yards of the thin layer as solid rock. I called attention to it the other day and said, "We cannot allow that to go in; we cannot allow that in the borrow".

Q. What do you think of that loose rock there? Is that not overdone?—A. I would not undertake to say that. They took some on top of this thing and took some underneath. I did not see it done; what the nature of it was I do not know.

Q. Is there any appearance there of loose rock to be seen now?—A. I think they induced the contractor to take this material instead of train-hauling it, which would have cost as much as the loose rock, plus over-haul.

Q. Does it not look more like common excavation than it does like loose rock? —A. Well, in case one did not see it taken out at all, and talking about it here, and not having examined it any more than having seen it going by, it would be hardly fair to say it was not loose rock and was common excavation.

Q. Has it not the appearance of common excavation to one looking at it? —A. He would say that was ploughed, probably.

By Mr. Gutelius:

Q. If you refer to mileage 64, you will note in a cut of some 14,000 yards, 231 yards only was classified as common excavation. I pointed this out to you, suggesting that there was 18 inches of loam and loose material. Is 231 yards sufficient for a cut of that size, when the 18 inches is apparent?—A. Eighteen inches would make more than 231 yards. I will put it that way.

Q. My memorandum says that you thought the same when we were looking at it?—A. Yes.

Q. Will you take that up and rectify it?—A. Yes.

Q. You remember that cut at 65.5?—A. Yes.

Q. Describe that cut and give the classification shown before you?—A. That was a cut of shale, with some earth on top; solid rock 2,145, loose rock 10.085, and common excavation 1,575.

By the Chairman:

Q. The cut consists, does it not, of common earth and shale, more or less; I am not giving the proportions?—A. Yes.

Q. It consists of common excavation and shale?—A. It consists of earth material and shale.

Q. As I recollect it, there is from two to three feet of common excavation over that shale that can be easily handled with a pick and shovel. Am I right in that?—A. There may be. I did not particularly examine that place.

Q. Now, we come to the shale. To me the shale appeared to be from two to three feet that you could shovel out in the ordinary way with a shovel?—A. Well, that was working into the side of it, where the weather had disintegrated it.

Q. No, from the top, when we cut in?—A. I did not see that.

Q. Do you not think that is right?—A. I would not undertake to say.

Q. If I am right in that, should it be classed as common, in your opinion? —A. If it is material that can be taken out with a shovel, yes.

Q. And then the remainder of the material, right to the bottom of the gradient, is shale, is it not?—A. Yes.

Q. And how was that removed?—A. I think the whole shale part of it was blasted, but I think that the upper part of it, that was considerably softer, was returned as loose rock, judging from the quantities, and here I think there was more of that material we call shale than is shown in the 3,000 returned as solid rock. There was only 3.000 solid and 10.000 loose.

Q. Which part is solid rock?—A. Probably the lower part of it is harder than that on top that you shovelled into.

Q. Do you put no part of the top as common?—A. I do not know about that.

Q. If we can take it out with an ordinary shovel it should be common?— A. Yes.

Q. If it is taken out by blasting what should it be?—A. Solid rock.

Q. Why did you not put it all in as solid rock?—A. I cannot say. I did not see the work taken out. I do not know what influenced the man's mind.

Q. You took the return made by the resident engineer on that?—A. Yes.

Q. If he found it as I say it impressed me that it was, then the percentage of common is greatly too small, is it not?—A. If it can be shovelled.

Q. The next cut 66.6, solid rock 8,677, loose rock 8,445, and common excavation 3,980, is that not in the same position as the other?—A. No, no shale in that.

Q. Do you not think that is shale in there?—A. No.

Q. We thought it was shale; what is it?—A. It is more sandstone.

Q. Where do you find solid rock in that? Is it not all either common or loose?—A. Well, the solid has probably been returned as assembled rock. I would have to look that up in the record at home. It comes in under the category of assembled rock.

Q. It would not come in under the category of ledge?—A. No.

Q. It is either loose or assembled rock?—A. Yes.

Q. What do you classify as assembled rock?—A. All the things I have personally seen—

Q. You got some special instructions from the late chief engineer about assembled rock?—A. Yes.

Q. And it is what he describes in that memorandum, as you understand it, that you have put in as assembled rock?—A. Yes.

Q. So that you were not left to your own discretion as to whether or not you would classify that as assembled rock? You simply followed the instructions of your superior officer?—A. So far as I understood them.

Q. And in that cut all the solid rock comes under that head?—A. There was some assembled rock in that cut and the balance was assembled rock.

Q. Have you had experience with assembled rock classification before this?—A. Never; never heard of such a thing.

Q. As construction engineer, do you consider the assembled rock classification under Lumsden's circular as being a practical instruction?—A. No.

Q. If his instruction in connection with assembled rock had never been made, would any considerable amount of money have been saved on the work?—A. Yes. I could not give an estimate offhand.

Q. I would like to have an expression from you as to classification of steam shovel material that does not require blasting, as to whether it could consistently be called loose rock?—A. Well, if it is material that would be classified as loose rock under any other conditions of removal, I consider it should be classified as loose rock if removed by steam shovel.

Q. In that connection, is it not a fact that you are influenced in classifying certain materials that are moved by hand on account of their cost of removal?—A. Undoubtedly.

Q. Is it not possible to carry that same argument into steam shovel work where it is easily removed; the classification then should be right?—A. I do not think so. I think the contractor has the same rules applied to material as if he was moving it by pick and shovel, because he has paid a lot of money for the steam shovel, and gone to a lot of expense to get the men there and operate, and keep them up; otherwise he would be penalized for putting on plant, if you gave him any other treatment.

By the Chairman:

Q. In other words you say that if it is loose rock, as a matter of fact under the specification, the fact that by a modern appliance he removes it more cheaply should not penalize him?—A. Exactly.

By Mr. Gutelius:

Q. Then, conversely, if he uses an antiquated appliance, and it costs him a large amount of money, should you not still adhere to the specification, regardless of cost?—A. Oh, well, strictly speaking, yes, but the question arises whether a man's mind is not, perhaps, influenced somewhat by what he sees it is costing a man to get the material out.

Q. Then is it not natural for him, unconsciously, to equalize that high classification by a lower classification when it is moved by steam shovel?—A. And he always does. You can go over the work to-day, and you will find the classification of the fifty miles that is all done by steam shovel is lower than that same class of material that you strike on the next contract beyond; and why? Because it was removed by steam shovel.

By the Chairman:

Q. From what you have said, it is not, then, in the interest of the owner of the railway to encourage or allow work to be done by stationmen?—A. No, sir, never. He had better pay at least ten per cent more to the man with the plant and know that he is going to get it done twenty per cent cheaper.

By Mr. Gutelius:

Q. We will take up the question of the possibility of a momentum grade between mileage 134 and 135. Mileage 134 is located at the foot of a long six-tenths maximum westbound grade, which extends for eight or ten miles?—A. Yes, sir.

Q. My suggestion is that this grade should have been extended level from mile 134 to 134.8 on a point thirty-five grade, and proceed on a one per cent. grade to the cutting at 135.3, a distance of about one half mile. What do you say as to whether that would be practicable?—A. Yes, it would be practicable. It would probably reduce the fill from 128,000 to about 50,000 yards.

Q. Why did you not use momentum grades of this character on your district? —A. Because I had no information and authority to do so.

Q. Did you endeavour to secure authority for the use of momentum grades? —A. So far as I remember, the whole thing was settled before I was district engineer.

Q. And your understanding——A. Is that no momentum grades were allowed.

Q. Could any considerable amount of money have been saved on your district if momentum grades had been allowed in places of this character?—A. Doubtless it could. That is probably the most glaring instance in the whole district.

By the Charman:

Q. From the construction or operation point of view, do you see any serious objection to momentum grades having been adopted on this railroad under all the conditions that existed here?—A. Of course the first question is easily answered. There is no difficulty in the construction. Then it becomes a question of operating; on which I do not consider myself an expert.

Q. Is it a usual practice, in good railroad construction to use momentum grades?—A. I know it is used on roads of high character in many places, and, of course, on cheap roads where I have been on construction, we had to use momentum grades.

By Mr. Gutelius:

Q. What grades did you follow between mileage 178 and 185?—A. Point four.

Q. These seven miles of railway, including Salmon River Viaduct?—A. Yes.

Q. Can you give me a rough estimate of the cost of this seven miles of railway, including the Viaduct at Salmon River, Caton Brook and Graham Brook?—A. Something over two million, I think. It is more than two million, but, without the figures before me, I do not want to pin myself to anything. I may say that this is very easily determined by reference to the estimates.

Q. The exact figures are easily determined by reference to the estimates? A. Yes.

Q. This is clearly the most expensive seven miles on your district?—A. Oh, yes.

Q. Did you have to do with the location of this line?—A. I did.

Q. What preliminary surveys did you make?—A. We made preliminary surveys all over that part of the country, and later on I had a preliminary survey made, with a view of getting down with a pusher of 1.10 from each way, a jack-knife pusher, down as near the level of Salmon River as possible.

Q. How near to the Salmon River did that survey bring you?—A. About 55 feet.

By the Chairman:

Q. What is the height of the viaduct over Salmon River now?—A. Practically 200 feet.

By Mr. Gutelius:

Q. Did you find practically a one point one route?—A. Oh, yes, you can get round there.

Q. Was there much additional distance?—A. I do not think so. I do not remember the exact amount.

Q. How much money, roughly speaking, would have been saved had that jack-knife one-point ten-grade been adopted?—A. Oh, something like a million and a half, I should say.

Q. What did you do toward getting this one-point one grade accepted?—A. Well, I discussed it with the then district engineer, who I think, discussed it with the authorities at Ottawa; I do not know whether there is any correspondence in the office to show; at any rate, I was told at the time that it would not be considered.

Q. Is this not a country where you would expect a one per cent grade to be used in railway construction?—A. As a pusher.

Q. Has not the adoption of the four-tenths eastbound and six-tenths westbound enormously increased the cost of the railway, not only between the tunnel and Salmon River viaduct, but over the entire district?—A. Well, I do not think I would want to say that, because there are sections of it where the point-four and point-six fit as nicely as anything could, but a great many places the adoption of these grades, of course, has very largely increased the cost.

Q. If a six-tenths grade had been used between Chipman and the top of the hill east, you could have lowered the crossing at Chipman and escaped that 9,000-foot cut at the top of the hill, could you not?—A. To a considerable extent, yes, certainly. It would have enabled us to have gone over the summit of this cut—not exactly over it, because we would have had to take something off this way, but it would have reduced that 75 per cent, say, just speaking roughly.

Q. The excavation was solid 35,000, loose 96,000 and common 24,000?—A. We could have cut the rock all out. They could have gone over the top of the rock and cut the other 60,000 yards down to probably 30 or 40 feet. On the other hand, going west on the point-six, it would have required some development or lengthening of the work, which could have been secured.

Q. What additional expense would there have been there?—A. Not very much; perhaps an extra $50,000 on that ten miles.

Q. And you would have saved approximately how much on the line between Chipman and mile 50?—A. I should say that the whole transaction would have netted a saving of $150,000, taking into account the development you would have to make here, charged against part of what you would have saved here.

Q. The net result would be that the Government would have been $150,000 to the good?—A. I think at least that.

Q. In the matter of the use of wooden trestles on a new railway of this character, what have you to say as an engineer, for or against?—A. Well, I consider it highly practicable to use substantial, say Southern pine trestles, with a life of ten to twelve years.

Q. Instead of what?—A. Instead of permanent construction at the outset.

Q. What objections do you see, as an engineer, to the construction of permanent heavy fills in a new country such as your district traverses?—A. You are then confined to the use of such material as lies at your hand much of the way, which has to be taken for whatever price there may be in the contractor's schedule, without the opportunity to do this filling subsequently, when the ordinary plant of the road when being operated, power, and that sort of thing, may be at liberty, and the work can be done to the best advantage and at the cheapest cost.

Q. Is there any advantage in filling in the future on account of the effect of clearing of the right of way and drying out of the material?—A. Yes.

Q. What are the advantages?—A. If you wait until the material has dried out, it is more likely to stay in place, and, more than that, you are not obliged to make that fill all in one year, but you will make a portion of it, such as will stand, and when you find it is reaching the point where it is likely to slough and slip, let it be till it hardens and dries out, and then in another year take the balance and complete it, but if you are obliged to construct it at the time, and you find your material slipping on you, then you have to adopt some other alternative, which is going to be a great deal more expensive, like the borrowing of rock, or something of that sort.

Q. It is a fact that you borrowed rock to hold mud fills, at large expense, which might have been saved, if the same material had been subject to drainage for a number of years?—A. Yes.

Q. I asked you to-day why the Salmon River Viaduct was not extended, rather than have the heavy fill at the east made of borrowed rock, and what reply did you make?—A. That the authorities at Ottawa would not permit of steel viaducts on curves.

Q. As an engineer do you think that is a sound objection?—A. No. We crossed the High River at Bridgewater on a twelve degree curve on a steel bridge, but of course I do not think that is good construction, if it can be avoided—so sharp a curve as that.

Q. But for a three-degree curve?—A. Anything up to a five or six; five anyway.

Q. Up to a five-degree curve you see no objection to it?—A. No.

Q. In reference to Coal Creek fill, mileage 45, by reference to your letter, May 31st, to Chief Engineer Grant, I note that the cost of this fill at present is $423,000?—A. That is the total.

Q. Did you expect this to cost that much money?—A. No.

Q. Why?—A. Because we expected to fill it with much cheaper material.

Q. What did you fill it with?—A. We put in a certain amount of earth, and found it sloughing and slipping, and all going to pieces, and we had to borrow rock to make it permanent.

Q. How high was the fill of soft material when you discovered it was liable to slide and slip?—A. Well, when we got in the approach to an elevation of 35 feet, I think—something like that.

Q. You decided that that material was unfit to raise to the total height?—A. Yes.

Q. What did you do when you came to that conclusion?—A. I took the matter up with Ottawa, and of course one of two things had to be done: either to borrow rock at the side at the price that had been fixed for rock borrow, $1.10, or train haul material 45 miles, which would have taken a considerable amount of yardage in addition; it would have cost about 90 cents a yard, with an overhaul, as against $1.10 for rock, and I recommended the rock.

Q. Did it occur to you at that time to recommend wooden trestles?—A. No, because the question of wooden trestles had been settled; there were no wooden trestles to be built.

Q. If that question has not been settled, do you think you would have recommended it, knowing the character of the material?—A. Very likely I would, yes.

Q. In actual construction where you make these fills, does not the contractor first construct a temporary wooden trestle over the whole distance, to carry the trains and dump the material?—A. The contractor has to do that.

Q. And the construction of those temporary trestles is a matter of large expense, is it not?—A. It depends upon whether the contractor is using the standard or narrow gauge outfit.

Q. Was it not a large expense to them?—A. They used a narrow gauge outfit, with dinkey engines, and they figure that the cost of wooden temporary trestles is about five cents a yard——

By Mr. Gutelius:

Q. For small trestles?—A. Yes.

Q. What do you estimate the cost of large trestles for standard equipment, per yard?—A. I do not know, for a structure like that.

Q. I want it generally, if you feel you can give a figure?—A. I think you would have to double that; ten cents a yard. They say here we are getting 50 cents a yard; ten cents of that goes into the temporary trestle, so they actually get forty cents a yard for train fill.

Q. That is lost, is it not, where the fill is made?—A. Yes, that is the end of it; it is buried up, so far as having any value, after it is buried up.

Q. You are familiar with this printed book of general instructions to civil engineers concerning surveys and construction?—A. Yes.

Q. Paragraph 26, curvature, says that curves less than 300 feet long are objectionable and should not be used. What do you say of that instruction?—A. I say I would use a curve fifty feet long, if it was all that was required.

Q. Then you do not agree with that instruction?—A. I never could see where it had any practical force whatever. Why should a man limit himself to 300 feet?

Q. What do you say to 600 feet of tangent between transition curves?—A. I cannot see the slightest advantage to be gained by it.

Q. Do you see any disadvantages?—A. There might be serious disadvantages. It might increase the cost of your work very materially.

Q. Did it affect you on this?—A. We never adhered to that. It was afterwards reduced to three, and we have in cases reduced it to two.

Q. That instruction was not followed in all cases in the construction of this line?—A. No.

Q. Broken back curves must not be used. On a railway where curves terminate in transitions, such as this, is there any objection to broken back curves?—(No answer).

By the Chairman:

Q. What do you understand by a broken back curve?—A. I balk right there. I would say I do not know what was in the mind of the man who made the book as to what should be considered a broken back curve, and I think it is this; if you have had a short tangent in there without the spiral, it would be a broken back. If there is objection to the broken back, it must be on the ground that it must make bad riding track or dangerous track. No other ground would be of any value.

Q. The minimum length of tangent between curves in the same direction, which is limited in this book to 600 feet, has the same objection in your point of view as the minimum length of tangent between curves in opposite directions?—A. Yes.

Q. You afterwards received instructions not to make curves of any greater length than 1,000 feet?—A. I did, but I found it impossible to follow those instructions in a great many cases.

Q. You were limited in curvature to six degree?—A. Yes.

Q. And these only in special cases?—A. Yes.

Q. By the original instructions?—A. Yes.

Q. Could you have saved any considerable amount of money on the heavy work of your district, if you had been given greater latitude in the matter of curvature?—A. Well, there are not very many places. We pointed out one or two places yesterday.

Q. Two or three places on the heavy work?—A. Yes. We did use them freely on that heavy work from the tunnel down—five and six degree curves.

Q. Eight degree curves in the two or three places would have saved a large amount of money?—A. Yes.

Q. 106.7, do you remember that place?—A. Yes.

Q. What do you say as to that?—A. Considerable excavation might have been saved at this point.

Q. I notice a concrete wall at mileage 147.2, deflecting the stream to an abutment in the bridge at this point. How did you happen to use this character of construction?—A. Well, that was a thin concrete wall. I do not think it cost any more than a substantial cedar crib would have cost us.

Q. You consider then that that construction is all right?—A. Yes.

Q. In passing over a number of fills, which were from 20 to 24 feet in width at the top, you told me that this excess was made generally to please the G.T.P.'s Inspecting Engineer?—A. Yes; and at present I have that in my office asking what I am going to do about narrow fills. I have the letter in answer in my office.

Q. Have you many narrow fills?—A. No.

By the Chairman:

Q. What do they refer to as narrow fills?—A. I do not know.

Q. Fills that are 18 feet across the top?—A. The specification specifies that embankments up to 16 feet in height should be 16 feet wide on top, and above 16 feet in height to 18 feet on top.

Q. And you think you have complied with the specification?—A. Yes, I think I have substantially complied with the specification. A man might go out and find a low bank somewhere that was not quite that width for a few feet.

By Mr. Gutelius:

Q. Who prepares your yard and building plans and specifications?—A. I should have to answer that those come to me from Ottawa.

Q. In the matter of gravity water supplies, you told me that you were given instructions to install gravity water supplies, if their cost did not exceed $25,000?

—A. Yes, and the dumping plant in addition. As I remember it, I wrote to Mr. MacPherson, the assistant chief engineer, asking him how much capital expenditure, in his judgment, would be allowed on gravity water supplies, and he replied, "$25,000, plus the pumping plant". I do not know if that is just as it is worded, but that is the gist of it.

By the Chairman:

Q. Did you install gravity supply where it did not exceed the amount specified by Mr. MacPherson?—A. Yes.

Q. Can you give us what the average cost of your water tanks and gravity supply amounted to?—A. I could not give you that, but you have it all here.

Q. What capacity of water supply in gallons did you install?—A. Well, of course, in a gravity supply we generally planned that we had water enough for any number of trains, but, as I said a moment ago, if you are going to undertake to figure whether a gravity supply is cheaper than a pumping plant, you must have the number of trains and the amount of water that is going to be required. If you are going to fit up a road for two or three trains each day, that is one proposition; if you are going to fit it up for ten trains each way, or twenty trains daily, that is quite another proposition.

By Mr. Gutelius:

Q. You think your water supply along the division as installed is equal now to ten or more trains per day each way?—A. Yes.

By the Chairman:

Q. From what I have seen and heard, it appears to me that there was a general policy to construct at once, quite irrespective of the cost, a railway of the very highest permanent construction, without taking at all into consideration the cost?—A. That was practically my understanding.

Q. So that there was not given to the engineers any discretion wherein they might use their knowledge, experience or ingenuity in saving money by adopting other principles?—A. I never was given that discretion.

Q. That discretion is surely given in the construction of high class railroads by people who have to take into consideration the cost of constructing, even the very highest class of railroads, is it not?—A. I so understand it.

Q. Prudent constructors of high class railroads usually postpone any avoidable expenditure until after the road is in operation, until after the road is constructed for some years, when, from time to time, they make additional expenditures, for the purpose of bringing their road up to the highest state of efficiency?—A. I do not know whether I should answer it this way, but this is how it is in my mind; that if that was not so, we would not have had any railways in this country.

Q. A railroad as a matter of fact is never finished?—A. That is a trite saying.

Q. It is true that all the very finest roads in the world are being constantly improved by straightening curves and raising gradients?—A. That is going on all over this continent to a great extent and has been for a good many years.

Q. Did you ever hear of a policy such as appears to have been adopted in the case of the building of the Transcontinental having been adopted in the construction of any other road in America?—A. That is a pretty sweeping question. I would answer that I never heard of one to any such extent.

Q. Can you tell me one where any such policy was ever adopted, even of a shorter extent?—A. Well, Mr. Gutelius will correct me if I am wrong, but I think one of those coal roads going to Pittsburg was built regardless of expense. It was built to the highest possible standard.

Q. How long was that road?—A. I would not like to say: I do not remember the mileage.

Q. About 200 miles?—A. Yes.

Q. Do you know why that policy was adopted in that case?—A. I assume it was adopted because they knew at the outset that they had enormous freight tonnage to haul over it.

By Mr. Gutelius:

Q. That railroad was owned by the United States Steel Corporation?—A. Yes.

By the Chairman:

Q. Built how long ago?—A. Ten or twelve years ago.

Q. They contemplated immediate use of it to its utmost capacity?—A. I think they figured to a certainty before they built it that they had to handle enormous freight.

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION MEETING AT OTTAWA, OCTOBER 16th, 1912.)

Present: G. Lynch-Staunton, K.C., *Chairman;* F. P. Gutelius, C.E.

Charles C. Foss, District Engineer on District A, National Transcontinental Railway, sworn:

Examined by Mr. Gutelius:

Q. With reference to the concrete used in the foundation for Little Salmon river viaduct, in Victoria County, New Brunswick, about mile 183, what mixture of concrete was used at that time?—A. For the foundation, that is the base course, 1 by 3 by 5; for the shaft of the pedestal, 1 by 2 by 4.

Q. Generally speaking, what mixture of concrete were pedestals of that character made of?—A. Most of the shafts of pedestals were 1 by 2 by 4.

Q. The original instructions, in connection with mass concrete of that character required you to use a mixture of 1 by 3 by 5 and 1 by 3 by 6?—A. I understand so.

Q. What was the contract price for 1 (cement), 2 (sand), 4 (broken stone) on Willard & Kitchen's contract, who were the contractors building this bridge?—A. $15.00 per cubic yard.

Q. What was the price for 1 (cement), 3 (sand), 6 (broken stone)?—A. $10.50.

Q. What was the contract price for 1 by 3 by 5?—$11.50.

Q. What was the contract price for 1 by 2 by 5?—A. $12.00 per cubic yard.

Q. From your statement, I see that 1,661 yards of 1 by 2 by 4 concrete was used in the shafts of these pedestals?—A. Whatever estimate is given there is right. On referring to my statement I find that that is correct.

Q. So that the class of concrete used when these various items are considered, is a very important matter?—A. Yes.

Q. Amounting roughly to how many dollars?—A. You mean the difference between that and 1 by 3 by 6?

Q. Yes?—A. There would be $4.50 a yard between that and 1 by 3 by 6.

Q. There would be a difference of between $7,000 and $8,000 between the use of 1 by 2 by 4 and 1 by 3 by 6?—A. Yes.

Q. In your letter of explanation, dated September 3, 1912, you say:—

> "I beg to say that the authorization given Mr. Balkam, in the matter of concrete mixture at the Little Salmon River viaduct, was, in the course of personal discussion of the matter and not in writing."

Q. Is that the fact?—A. Yes.

Q. On September 4, the next day, you wrote him another letter:—

> "I beg to say that as the chief engineer had authorized the use of 1 by 2 by 4 mixture in this class of pedestals in viaducts in other parts of the work, I saw no reason why, if it were necessary or advisable at other points, it should not be used here, the material being no better than that found at other points where this mixture had been used."

Q. What other point did you have in mind?—A. Particularly Four Mile Brook.

Q. In a letter from Mr. Lumsden you received authority to use 1 by 2 by 4 mixture in the pedestals at Four Mile Brook. That letter to which you refer is dated August 6, 1908. I now show you the letter in which Mr. Lumsden says:—

> "Owing to the poor sand which you seem to be able to obtain in this section of New Brunswick for the making of concrete, it may be advisable to use 1 by 2 by 4 in places, but before doing so the price for such should be arranged with Messrs. Lyons and White, and I would consider $11.50 per cubic yard a fair one."

A. That is right.

Q. You replied to Mr. Lumsden on the 10th of August, advising him that there were only 60 or 70 yards of concrete involved and that their price for 1 by 2 by 4 mixture is $12.00 and that you hardly think it was worth while to ask them to change the contract price for a difference of fifty cents?—A. Yes.

Q. Why was it necessary to rebuild these pedestals at Four Mile Brook?—A. They were injured by the frost.

Q. What was the character of the material used in the original concrete?—A. Well, slate gravel, slate sand. In the second one they had to bring sand from away down at MacAdam.

Q. That sand was brought in on cars from near MacAdam Junction on the C.P.R.?—A. Yes.

Q. From your letters I learned that you were afraid of the sand and gravel because of its poor quality?—A. Yes, it was not as good as quartzite sand and gravel.

Q. It occurred to me, Mr. Foss, that in going to MacAdam Junction for sand, you remedied the difficulty of poor concrete by securing good sand?—A. Yes, so far as Four Mile Brook is concerned.

Q. Why then, did you increase the quantity of cement in the mixture as well as change the kind of sand?—A. To make assurance doubly sure.

Q. Does it not look as though, in the interests of economy, you should have taken advantage of the fact that as you were getting a first class sand you could have used a cheaper mixture?—A. Perhaps that would have been good enough.

Q. Now, it appears from your letter, that the authority given in Mr. Lumsden's letter of August 6, was used by you to enrich the mixture in the

pedestals of the Salmon River viaduct?—A. I do not know whether it would be allowable or fair for me to say that I did discuss personally that matter with Mr. Lumsden here in Ottawa, generally as to pedestals everywhere.

Q. It is perfectly fair for you to tell us what transpired?—A. Yes, and he readily agreed to the use of 1 by 2 by 4 mixture in the class of pedestals in any viaduct. That was subsequent to this correspondence.

Q. Then you say you had verbally authority from the chief engineer?—A. I consider I had.

Q. When did this conversation occur?—A. I should think some time in the same summer that this correspondence took place, but I cannot specify the date. It was at a later period when I was here.

Q. And the authority that you had received from Mr. Lumsden verbally, had back of it the character of the material in that locality?—A. Yes, that was discussed.

Q. And was not that the real reason?—A. Oh, yes.

Q. You did not consider the 1 by 2 by 4 mixture, necessary on masonry work in district F, when you were there?—A. I was only there for a month, and I really never got in touch with that work.

Q. The character of sand and gravel there was first class?—A. Yes.

Q. So that 1 by 3 by 6 would do?—A. 1 by 3 by 6 for base courses, and 1 by 3 by 5 for pedestals, I should think would be ample.

Q. Do you remember that in Mr. Lumsden's letter of August 27, 1908, to you, he says:—

> "In regard to yours of the 11th instant, asking for extra work order, it is the contractors' business to furnish good, clean, sharp sand, no matter where he has to get it from, and you should not allow any other to be used in the work. Such being the case I do not feel prepared to give an order for the removal of unsatisfactory work, etc."

A. That was with reference to Four Mile Brook.

Q. Does not that indicate to you that the character of the material that is economically available ought not to influence the mixture. That is, if the contractor had to send to MacAdam for sand, and to MacAdam for gravel, even, that was his own affair?—A. Yes.

Q. Now, tell us about your troubles at Four Mile Brook?—A. If you required the contractor to haul that material on wagons, eight or nine miles from the cars, that would be rather unreasonable.

Q. Do you feel that the unreasonableness of it would justify you in paying him a higher price when you had an ironclad contract with him?—A. Well, I must say I think it would.

Q. It was a question of transportation?—A. Yes, that would be a question of transportation.

Q. Suppose he had constructed a temporary wooden bridge to have got the track over, or waited until the track-laying reached the bridge, you would have insisted on sand and gravel like that you got from MacAdam, and you would also have insisted on 1 by 3 by 6 and paid him at 1 by 3 by 6 price, would you not?—A. If he had a track to deliver it, oh yes.

Q. Am I right in assuming that one of the principal reasons for using the rich 1 by 2 by 4 mixture at Little Salmon, was, that the local sand and gravel was not good enough to be used in the 1 by 3 by 6 mixture?—A. That is the reason.

Q. Although it was clear to your mind from the contract and from Mr. Lumsden's letter to you, of August 27, 1908, that it was the contractors' affair as to where they would get good sand and good gravel?—A. Yes, you could put that construction on it.

Q. What other reason is there besides that?—A. Besides the necessity of making what we thought a safe mixture?

Q. What other reason do you see for authorizing the 1 by 2 by 4 mixture?—A. None.

Q. You speak of Mr. Balkam; did he concur in this arrangement?—A. Mr. Balkam was insisting on it.

Q. He was afraid of 1 by 3 by 6 mixture made of local sand and gravel?—A. Yes.

Q. In your discussion with the chief engineer, in connection with the adoption of a richer mixture, was that the only reason you think of that was used for its adoption?—A. Yes.

Q. Did not Mr. Lumsden, in his talk with you, refer to its being the contractors' business as to where he should get the material?—A. I do not think he did in that conversation.

Q. Did you forget about it?—A. He had reached the conclusion that it would be in the interest of safety to build the shaft of pedestals, as he expressed it, above ground, of 1 by 2 by 4 mixture, especially where there was any doubt about any of the material that could be easily obtained.

Q. Now, Mr. Foss, you are an engineer of large experience, and you have worked on a great many contracts where you have had to make your own decisions; if you had been constructing a railroad on the most economical lines, and it was left to your own discretion to deal with that contract, would you have paid $4.50 more for concrete than you were required to pay under that contract?—A. If I was working in the interests of economy, I should probably try to save in other places than in a structure of that height, weight and importance; I should consider that a few thousand dollars spent there might be in the interests of economy.

Q. Between $7,000 and $8,000 is the amount involved at that place, in connection with the contracts. Now remember, that the size of these pedestals was calculated by the Bridge Department, so that ordinarily 1 by 3 by 6 concrete, which was originally prescribed for that point, would be considered enough; the width of the shoes at the foot of the trestles was made large enough so that the strain could be properly carried down to it; the concrete would have to be built under your instructions so that it would come up to the specifications; would you not have been justified in insisting on the contractor getting such materials as would give such results?—A. Under the strict letter of the contract probably yes.

Q. So that it was in the nature of a help out to use the poor sand and lots of cement?—A. Yes.

Q. Having Mr. Lumsden's letter about the Four Mile Brook pedestals, did it occur to you that you should have made a special deal with Willard & Kitchen for any enrichment of concrete that your required?—A. Well, at any rate I did not.

Q. But, looking at it from that point, it might have been a proper thing to do?—A. Yes.

Q. Do you believe that you got a straight 1 by 2 by 4 mixture in these shafts?—A. If I can believe the evidence of the resident bridge engineer and the inspector, I certainly did.

Q. Are they men that you would reasonably believe?—A. Yes.

Q. Did you make any figures as to what difference in cost to the contractors, there is between 1 by 2 by 4 and 1 by 3 by 6 concrete, on this particular work?—A. We have, from time to time.

Q. What is your idea of the difference in cost between the two?—A. It depends on how much the contractor is paid for cement and how far he has to transport it.

Q. What is your idea of the cost per barrel of cement at Salmon River?—A. The cost per barrel of cement at Salmon River was at least $3.00 or $3.25.

Q. That was a high price?—A. They had to haul it.

Q. How many miles did they have to team it on wagons?—A. About ten miles.

Q. I made a calculation this morning, the result of which was that six-tenths of a barrel more of cement was used in 1 by 2 by 4 than in 1 by 3 by 6, does that sound about right to you?—A. I expect so.

Q. So that the extra cement, taking it at three dollars a barrel, would, at Salmon River, amount to $1.80 a yard?—A. Yes.

Q. With that in mind it would appear that you could at that time have made a deal with the Willard & Kitchen Company, to construct these pedestals of 1 by 2 by 4 concrete for $1.80 a yard more than their contract price for 1 by 3 by 6, does that seem about right?—A. Possibly, though I do not think they were very much open to deals.

Q. Did you ever make any contract prices for extras with these people?—A. No.

Q. Did you ever make any contract prices for extras for work under your jurisdiction?—A. No.

Q. You did not consider that it was the duty of the district engineer to look after these special prices as you were going over the work?—A. Well, I

Q. Were any of the Grand Trunk Pacific officers there to look it over?—A. never had any instructions in regard to determining any changes in price except possibly that one suggested.

Q. That was the one at Four Mile Brook?—A. Yes.

By the Chairman:

Q. The contract provides, does it not, that changes in extra work must have been first directed in writing by the engineer and notified to the contractor in writing, as well as the price to be paid for such extra work?—A. That is extra work that is not covered by any item in the schedule.

Q. Yes, but the contract also provides that no additions or changes shall be made by anybody?—A. I have always understood that no change could be made without an Order-in-Council.

Q. That is not the point I am speaking of here———you have got a situation before you in which you think that a change should be made in the mixture of cement. Now, that change will necessarily materially increase the cost of construction to the Government And that is one of the changes provided for under section 11 of the contract?—A. Well, 1 by 2 by 4 mixture is specified, and the price is named for it.

Q. It is in the contract that any mass concrete in piers, abutments and bank foundations and turntables, shall be 1 by 3 by 6?—A. It is changing the concrete for a particular structure, but it is not changing the contract.

Q. You are changing the mixture of the concrete in the piers?—A. In the pedestals.

Q. You are changing it from 1 by 3 by 6 to 1 by 2 by 4? And it is distinctly stated in the contract, section 68 of the general specifications, that that material is only used in copings and in bridge seats, and so you were making a change there which is not authorized by the contract and specifications, but which may be done under section 11 of the contract; and, section 11 of the contract gives the engineer the power to make such changes, but it provides that such changes must be authorized in writing by the engineer, and that the contractors shall not be entitled to any increased price for such changes, unless it shall have first been directed in writing, by the engineer and notified to the contractor in writing. This is a very serious change and one which should have been authorized by the chief engineer in writing. You said that the necessity for making that change arose only from the fact that the contractor could not obtain the material

he agreed to put in the piers, except at an increased price to him—could it possibly be argued that the contractor should be paid anything more than the extra expense to which he had been put. I am speaking now of the fairness of the proposition alone?—A. It may have been error or a mistake, but it was done.

Q. When you make the returns for these changes, do you indicate them in your estimates?—A. Yes, we indicate that a certain amount of 1 by 2 by 4 mixture was used.

Q. And that would have been apparent in your first estimates sent to the Ottawa office.—A. Yes.

Q. When was your attention first called to the use of this concrete being irregular?—A. I think after the pedestals were all completed, that is my recollection.

Q. To what railway station was the cement used at the Little Salmon viaduct, hauled by the contractor?—A. Grand Falls.

Q. On the C.P.R.?—A. Yes.

Q. For what structures and extending over what part of the railway, did the contractor have his cement delivered at Grand Falls?—A. From recollection I should say, from mile 178 to the Grand Falls connection, about mile 194.

By Mr. Gutelius:

Q. By whom was your attention first called to the fact that the use of 1 by 2 by 4 mixture was questioned?—A. I think in a letter from Mr. Uniacke.

Q. What is the status of the estimates at present in connection with the payment for that concrete?—A. You mean, are the estimates made based on the classification returned in that list?

Q. Yes?—A. They are.

Q. The shafts of these pedestals are returned on these present estimates as 1 by 2 by 4 concrete at $15.00 per yard?—A. Yes.

Q. In view of all the circumstances in this case, would it be a hardship on the contractor if the commission were now to recommend that he be paid only for the cost of the extra cement, which he put into the mixture?—A. I do not believe it would; I should not think it was a hardship on the contractor.

Q. Now, what you have said concerning the pedestals on the Salmon river viaduct will apply also to all 1 by 2 by 4 concrete used on contract No. 5 in mass work?—A. I think so.

Q. The conditions in the Salmon River viaduct case are similar to these in other cases, with respect to 1 by 2 by 4 mixture?—A. Yes.

Q. From the statement which I have shown you, the total yardage of 1 by 2 by 4 concrete, amounts to 5,136 yards on contract No. 5?—A. Yes.

Q. So that the sum of money involved on that contract, in respect to concrete will amount to about $22,000?—A. I do not think you could make a comparison on this specification between 1 by 2 by 4 and 1 by 3 by 6, I think you must compare it with 1 by 3 by 5.

Q. And the price of 1 by 3 by 5 was $11.50 per yard?—A. Yes.

Q. So that it would be a saving of from $3.50 to $4.50 a yard and would amount to between $15,000 and $20,000 on that work?—A. Yes.

Q. In your evidence in June last, you stated that if a jackknife pusher grade had been constructed across the Little Salmon River Valley, that something like one and a half million dollars could have been saved———since that time you have made a further estimate, what are the figures of that estimate?—A. Had a jackknife pusher grade been adopted at the Little Salmon River, there would have been saved $1,644,882, and I think—I do not know whether you want me to put that in the evidence or not—I think that would have been somewhat increased if a careful pusher had been worked out and located.

Q. You think a still larger saving than that would have been effected?—A. Yes, probably a saving of one and three-quarter million dollars.

Q. Having in mind the character of the railway, its cost, and the business that could reasonably be expected on it, would you, if left to your own discretion, have constructed this jackknife pusher grade instead of the big trestle?—A. I would have constructed it anyway, left to my discretion.

Q. You would have built a pusher grade there if you were left to your own discretion?—A. Yes.

Q. Why?—A. Because, calculating the money at four per cent interest, the interest on the money that would have been saved would probably amount to $75,000 a year and that would certainly have paid for pushing the heaviest traffic that is likely ever to go over that road.

Q. I have before me a memorandum in connection with the location of the divisional yard at Edmundston, New Brunswick, where was the yard finally built?—A. At Edmundston.

Q. What location was originally suggested by you?—A. At mile 256.

Q. What saving do you consider would have been effected if the yard had been built at mile 256?—A. About $100,000.

Q. Would that location of the yard at mile 256 have been as efficient in the matter of operating the railway as the present location?—A. Geographically, I think the yard is better situated at Edmundston, but if you are asking the question merely as to the local operation of the yard, it would have been as efficient there as at Edmundston.

Q. What advantage would the location of the yard at Mile 256 have had over the location of the yard at Edmundston?—A. In addition to the advantage of the lesser cost, there would have been room for expansion.

Q. Is there any room for expansion at Edmundston?—A. None.

Q. Referring to the geographical location of the yard, what is the length of engine district on either side of the Edmundston yard?—A. I understand it is 113 miles east and 125 miles west.

Q. By placing the yard at mile 256, what would have been the length of engine district?—A. About 139 miles east and 99 miles west.

Q. In the light of your present knowledge of this matter, where would you have constructed the yard, as an engineer?—A. I would have constructed it at mile 256.

Q. And saved $100,000?—A. Yes.

Q. Who actually passed upon the location of the yard at Edmundston?—A. I understand it was done between the commissioners and the Grand Trunk Pacific.

Q. Do you think the Grand Trunk Pacific was interested?—A. I believe it was a matter of negotiation between the Commissioners and Mr. Woods, chief engineer of the Grand Trunk Pacific.

Q. Were any of the Grand Trunk Pacific officers there to look it over?—A. I do not know whether Mr. Woods came there especially for that.

Q. He was there and looked it over?—A. Yes.

Q. In the early negotiations did not the city of Edmundston offer free water if the yard had been moved to Edmundston?—A. My recollection is, that they offered free right of way; I am not so sure about the water, although I think so.

Q. What was the final result? Did you get either the right of way or the water free?—A. They made a written agreement that the right of way was not to cost more than a certain amount, and anything beyond that Edmundston was to pay, but I do not remember the figures now.

Q. Do you remember whether you kept within that figure?—A. I think we did.

Q. So that you got nothing from the town of Edmundston?—A. No.

Q. Although they offered free right of way and talked about free water?—A. Yes.

Q. I have information that you are paying $2,000 a year for water for terminal purposes at this yard? Is that correct?—A. We are not paying it yet, but I understand we are to pay it.

Q. In your previous testimony, Mr. Foss, in the matter of gravity water supply, you said that the supplies provided on your district were ample for any traffic that might be handled on that railway. I would ask you now if you concur in the recommendation that $25,000 be expended for gravity water supply at a station?—A. No, outside of divisional points, no.

Q. What is the outside figure that you think should be expended on a gravity supply where water can be pumped with a gasoline pump?—A. The question of permissible expenditure to obtain a gravity supply, can only be decided by a study of conditions at each particular location, but for wayside stations where a pumping supply can be obtained in proximity to the tank, without an extensive lift, I consider $12,500 the greatest expenditure justifiable to obtain a gravity supply.

Q. You made returns under the heading "solid rock" of what has been called "assembled rock"?—A. Yes.

Q. Can you tell us what percentage, if any, of boulders, of a cubic yard and over in size, was included in assembled rock?—A. No boulder measurement was kept and as regards boulders contained in assembled rock, I am satisfied on contract No. 1, from my knowledge of the cuttings from which these returns were made, fifty per cent of this rock would have filled the specifications for boulders, namely, one cubic yard. The same, I am satisfied, would hold true of the small amount of assembled rock returned on contract No. 2. On all the other contracts, I think an average of five per cent would cover all the boulders that would be measured by the yard and returned in the assembled rock statement. This would amount to, on contract No. 1, 3,534; on contract No. 2, 305 yards; on contract No. 3, 1,509 yards; on contract No. 4, 5,175 yards; on contract No. 5, 5,780 yards; on contract No. 6, 3,110 yards; showing a total of 19,413 yards of boulders measuring a cubic yard and upwards in the assembled rock returned in my district.

Q. The remainder of the assembled rock returns are made up of smaller stones and interstitial material?—A. Yes.

By the Chairman:

Q. Do you know how much assembled rock has been returned in your own whole district?—A. You have a statement of it there; it is 305,009 yards up to the first of September, 1911.

Q. Did you adopt any rule in classifying material as assembled rock, as to the percentage of rocks there must necessarily be in the mass?—A. No. There is no hard and fast rule that could be applied to that.

Q. You could not tell then what average percentage of rock was in the material classified as rock in your district?—A. I cannot say.

Q. Assuming you had charge of the building of this railway for a company, which had ample funds to build a first-class railway, with a four-tenths grade eastbound and a six-tenths grade westbound, and assuming that your instructions had been to build a first-class road as cheaply as possible without scamping the road or impairing its efficiency, could you have saved any of the money expended by the commission in your district?—A. To work out the greatest possible economy, without detracting from the final efficient character of the road, if it were left to my discretion I could have saved money.

Q. Could you have saved a large amount or a small amount of money?—A. I could have saved a large amount of money.

Q. Indicate in what particular you could have made this large saving?—A. The two great items would be the jack-knife pusher grade which I think should have been constructed at Salmon River, and the general use of timber trestles.

Q. Would increasing the curvature to eight degrees have been out of the question on such a road as you would build?—A. For the most part it would not be necessary, only on occasions. There are a few places where that might have been done. By the adoption of moderate momentum grades in certain cases, money could have been saved. At Coal Creek a timber trestle would have saved a large amount of money. I would have used lighter rails in sidings and yards. I would have used a 65-pound rail in the sidings and yards which is just as good as an eighty-pound rail for that purpose. I would have used wooden culverts in the moderate banks in a country where you could get cedar.

Q. Could you turn all that into dollars?—A. Oh, bless your heart, no.

Q. Do you think you could figure it out?—A. Oh yes.

Q. Will you make up a statement showing the saving in dollars which you could have effected in this way?—A. To prepare a statement of that kind would require a great deal of work. The data is already in this office, and if you will furnish it to me in convenient form, I shall make such a statement as you ask for.

Q. If these economies were practised in the construction of this road, would it, for all commercial purposes, be as efficient a road as it is now?—A. Yes.

Q. And could as large loads be hauled over it at the same cost?—A. You build a line at 0.6 and 0.4 grade, or its equivalent pushing capacity, and with reasonable curvature and compensation on it, then you can haul just as big a train over a timber trestle as you can over a solid fill. Then the only question that comes up is as to whether you have arrived at the broadest basis of economy in the maintenance and operation, and that feature is determined by the traffic.

By Mr. Gutelius:

Q. Then, the advantage in deferring the filling of timber trestles lies in the fact that in eight or ten or more years you will actually know what the governing feature is, whereas at present you must guess it; by the governing feature I mean the traffic?—A. Just so.

The witness was not further examined for the present.

(NATIONAL TRANSCONTINENTAL RALIWAY ENQUIRY COMMISMISSION. MEETING AT OTTAWA, TUESDAY, OCTOBER 15th, 1912).

Present: G. Lynch-Staunton, K.C., *Chairman*; F. P. Gutelius, C.E.

Arthur E. Doucet, District Engineer, National Transcontinental Railway, sworn:

Examined by Mr. Gutelius:

Q. Mr. Doucet, give us a short description of your experience in responsible railway engineering work?—A. I started with the Canadian Pacific Railway in 1880. I was engineer on the Algoma Branch of the C.P.R. from 1881 to 1883. I was then resident Engineer on Lake Superior for the C.P.R. from 1883 to 1885

at Jackfish Bay. During 1886 I was assistant engineer on the Lachine Bridge for the C.P.R. From 1887 to 1898 I was contractors' chief engineer for R. G. Reid & Co. From 1898 to 1900 I was chief engineer of the Arrowhead and Kootenay Railway for the C.P.R., and engineer in charge of reducing grades on the prairie, and I was also, during that time, in charge of reducing grades between Farnham and Newport. From 1900 to 1904 I was chief engineer on the Quebec & Lake St. John Railway and the Great Northern Railway of Canada. Then from 1904 to the present time I was district engineer of the Transcontinental Railway. I gave up the chief engineership of the Quebec & Lake St. John Railway in 1908.

Q. So that you have had about thirty-two years of experience in railway construction in Canada?—A. Yes.

Q. With reference to the specifications under which the National Transcontinental Railway is being constructed—I direct your attention to the clauses covering the classification—have these classification clauses been changed from the original in any contract under your charge?—A. So far as the classification is concerned, no.

Q. So that it is fair to assume that any interpretation that may be placed on any one of the contracts would apply to the others?—A. Yes.

Q. You are familiar with the classification used on the Canadian Pacific Railway?—A. Yes.

Q. In a general way, does the three item classification of the C.P.R. and the one under which you are now working on the Transcontinental, agree, and if not what are the special points of difference—I refer particularly to the practical understanding of them, rather than to the phraseology?—A. Yes, practically they agree.

Q. Would it be fair for an observer to assume that the three classifications, solid rock, loose rock and hardpan, and common excavation, would be interpreted the same as in the case of the C.P.R. classification?—A. Yes, generally speaking.

Q. Then, Mr. Doucet, a contractor who was in the habit of working under C.P.R. specifications, would naturally bid with the expectation that he would receive the same classification as he had been accustomed to receive under C.P.R. engineers?—A. Yes, with this exception, that perhaps the material might be different on the portion he was tendering on, to the work he had been doing previously on the C.P.R.

Q. But, based on the specification itself, the price ought to be practically the same?—A. Yes.

Q. How did prices on the contracts on your district compare, generally speaking, with prices that were given contractors on the last C.P.R. or Great Northern work that you were on?—A. They were low on the Transcontinental, in comparison.

Q. How did your classification under this contract compare with the classification you had experienced with the C.P.R. and Quebec & Lake St. John Railway in the matter of solid rock?—A. So far as any work I did for the C.P.R. is concerned, we did not meet the same material; with the Quebec & Lake St. John Railway it was the same classification.

Q. Did you have an item on the Quebec & Lake St. John Railway that compares with what we know in the specification as "assembled rock"?—A. No.

Q. Will you describe "assembled rock" as you understand it, and as it has been returned?—A. A mass of boulders held together by some cementing material, clay, hard compact sand; the boulders forming at least fifty per cent of the mass, and the whole mass requiring constant blasting practically, to be taken out.

Q. Did the size of the boulders or rock fragments have any influence on the classification?—A. Yes.

Q. What, under that interpretation, could be considered the average size that would be called "assembled rock"?—A. Anything over eight or nine inches.

Q. If the mass contained rock fragments and boulders over eight inches, in the major diameter, and was held together, as you say, with fifty per cent of the mass composed of stones of that character and larger, did you call it "solid rock"? —A. Yes.

Q. When this was called "solid rock," what was the nature of the interstitial material?—A. It was very hard clay or very hard sand which must have been acted upon by the water at some period to make it practically hard like cement.

Q. Now, if you had that material without any stones in it, what would you classify it as?—A. Without any stones, I would classify it as "loose rock."

Q. And if you had the stones separately, what would you classify it as?—A. It would depend on measurement.

Q. If you had these stones separately, with very loose sand intervening, what would you classify it?—A. The stone would be measured as loose rock up to a certain size.

Q. So that when these two materials are found together, they were considered, under the interpretation which the chief engineer placed on the specification, as "solid rock"?—A. Yes, when the two are met together in the proportions above stated of fifty per cent or more of rock.

Q. In the matter of the third classification, namely "common excavation," it is stated in paragraph 35 of the specification that all cemented gravel, indurated clay, and other materials, that cannot in the judgment of the engineer be ploughed with a ten-inch grading plough, behind a team of six good horses properly handled, shall be classified as loose rock?—A. Yes.

Q. If such material could be broken up by such a plough and such a team, what would it be called?—A. Common excavation.

Q. Was that interpretation followed strictly on your district?—A. Well, it was meant to, that was my intention.

Q. Did you classify any material as loose rock, which was too soft to plough? —A. No.

Q. So that this ploughing clause is really a test for hardness?—A. Exactly, it must be a test for hardness, because if you take a very steep side you cannot possibly put horses there to plough it; it must be intended as a test of hardness and nothing else.

Q. And the fact that a team of six horses is specified, rather than four horses, as is usually specified in grading work, would indicate that it was a plough test rather than a practical method of removing material?—A. Yes.

Q. Referring again to the solid rock specification, of which assembled rock forms a part, could you, as district engineer, have classified the material which you described a moment ago as being composed of fragments of loose rock, and cemented gravel, could you have classified it as solid rock based solely on your interpretation of the specification? That is, could you have consistently classified this material as solid rock without instructions or the interpretation from your superiors?—A. Yes, I did do so.

Q. In doing so, you are cognizant of the fact that the material was composed of loose rock and cemented gravel which separately would have taken loose rock classification?—A. Yes, if you look to the encyclopædia for the interpretation of rock, you will find that they give "rock" as a glacial deposit composed of boulders and clay. They say it is sand, or hard sand and clay, which has been deposited there by glacial action.

Q. Did you ever work under any other specification, in which the material that you classified there as solid rock, under assembled rock, was placed in that classification?—A. Your idea is to ask me if I met with the same thing on the C.P.R., would I have done the same thing. I would have given a certain proportion of it as solid rock, and I think most engineers would have done so.

Q. Would the proportion be anything near like the proportion you gave in this case?—A. Yes, practically.

Q. Did you ever really do that?—A. I did it on the Quebec & Lake St. John Railway.

Q. You gave solid rock for that mixed material?—A. A proportion, yes.

Q. And your specification on the Quebec & Lake St. John Railway was practically the same as the Canadian Pacific Railway?—A. Yes.

Q. And the same as this specification?—A. No, this was different.

Q. How could you harmonize that with the condition that solid rock must contain solid rock excavation which includes all rock found in ledges or masses of more than one cubic yard, when you tell me that these pieces of stone are as small as eight inches?—A. The cementing material comes in there. The cementing material holds the boulders and makes up a mass which really renders it necessary to use constant blasting to get it out.

Q. Is it not possible that all of these rock fragments or boulders could be removed by picks and bars, working in the face, without the use of powder?—A. Not practically.

Q. My question is, was it not possible to do so?—A. It was possible, in the sense that you could take out a cut of limestone for instance, without the use of powder, if you take time enough. To my mind, it was impossible to take these masses of boulders and cemented stuff, out by pick and shovel; we never could have got through at all if we did that.

Q. Is it not a fact that in all the exploration digging done on your division, it was possible to dig around every one of these boulders with a pick, so that it would fall out of the face of the cutting?—A. That was possible.

Q. Then, your reason for calling this material solid rock is, that it was more practical to remove it by blasting?—A. Yes.

By the Chairman:

Q. When these specifications were given to you as district engineer, were you given any interpretation of them by the commission, or were you left to interpret them yourself?—A. Left to interpret them ourselves.

Q. I speak of yourself, that means you and your assistants?—A. Yes.

Q. In taking section 34 of the specification, did you interpret the word "mass" to include anything more than rock?—A. When it was brought to my attention, yes. When I first saw the specification, I took it for granted that the classification would be the same as on all other railways. It did not catch my attention until the matter was specially brough to my notice by the engineers on the ground.

Q. Did I understand you to say that at first blush you took solid rock excavation to include only rock?—A. Yes.

Q. You did not think when you first read section 34, that you should include any other material than rock in solid rock excavation?—A. Yes, ledge rock and boulders over a yard.

Q. You afterwards changed your opinion on that?—A. When it was brought to my attention, yes.

Q. Who brought it to your attention?—A. It was brought to my attention by my assistant engineer, Mr. Gordon Grant, a very short time after construction started.

Q. Tell us about that?—A. They were working at La Tuque where most of this assembled rock was being met with. Mr. Grant came back to my office and reported that large masses of boulders and cemented material between were being met with and that the percentage of solid rock was being given for that material. Mr. Woods, assistant chief engineer of the Grand Trunk Pacific, and Mr. Armstrong, district engineer of the Grand Trunk Pacific, went up to La Tuque, and on the way back they came into my office and said that though the classification might be a little high still they had nothing to complain of. Mr. Woods instructed Mr. Armstrong, the district engineer of the Grand Trunk Pacific, to give me a letter approving of the classification to date. This

was in June, 1907. I went personally over the work at the time, inspecting with my assistants and division engineers, and found no reason to change the classification that was being returned.

Q. This was the occasion on which it was brought to your attention that more than mere rock was being classified under the head of solid rock excavation? —A. Yes.

Q. Do I understand you that you then re-considered clause 34 and came to the conclusion that it included these masses?—A. Yes.

Q. That made a serious difference, did it not, in the classification?—A. Yes.

Q. Did you bring that to the attention of the chief engineer?—A. Yes.

Q. Do you know whether it was brought to the attention of the commission at that time?—A. In August of 1907, Mr. Woods made another visit to the work with Mr. Armstrong, and on his return I believe he discussed the matter with our own chief engineer, Mr. Lumsden, complaining that the classification was too high. Mr. Lumsden had been up there himself in June, 1907, and made no complaint as to the way in which the classification was being returned, but on Mr. Woods bringing the matter to his notice, he wrote me in October, 1907, to say that he intended to go up to La Tuque to inspect the work, that he would be accompanied by the commissioners, by Mr. Woods and by Mr. Armstrong, and that he required me to have my assistant, division, and resident engineers on the ground, so that we could go over the work and discuss the classification between ourselves. We all got there. Mr. Lumsden and the other engineers walked over the ground.

Q. Did the commissioners walk over the ground?—A. The commissioners were there and they did not go over the ground. Mr. Lumsden did not express any opinion on the ground, but on our return to Quebec he told me in my office that he could not approve of the classification. Mr. Lumsden did not, however, say, what the classification ought to be, and did not give me any orders to reduce the returns as made. Matters went on in this way, until in December, 1907, and January, 1908, we received from Mr. Lumsden a blue print and interpretation of the item "solid rock." This interpretation, it appeared to me, coincided with the classification we had been returning. The only debatable point being the amount of rock contained in the mass and the measurement of boulders. The district engineers met Mr. Lumsden in Ottawa in January, 1908, to discuss the blue print and then explained to him that it was impossible to measure all the rocks, instancing the cut at La Tuque where separate measurements were impracticable. He then consented to change the measurement clauses to meet our objections. He wrote me at the end of January, 1908, and also in February, asking me if the classification returned by us agreed with his interpretation, and I answered: yes. Mr. Lumsden knew that no deduction had been made and knew by personal observation the material moved, so that if he still thought the excavation, as returned by us was too high, he could have ordered us to reduce it. Estimates were returned monthly and were approved by him until June, 1909. In the meantime, estimates were given to the contractors and the men were paid off. When the arbitrators, Messrs. Schreiber, Kelliher, and Grant, came over the work in June, 1910, they gave us a practical application of their interpretation of the item "assembled rock." When they reached mile 23 on contract 8, the furthest point east at which the Grand Trunk Pacific Railway engineers had made objections to the classification, they stopped, and Mr. Kelliher, on behalf of the Grand Trunk Pacific, and Mr. Grant, on behalf of the Transcontinental Railway, with Mr. Schreiber's consent, appointed the district engineer of the Grand Trunk Pacific, Mr. Fotheringham, and myself, to go over the whole of the remainder of the work, and they instructed us to classify according to the method we had seen them pursuing during their arbitration. If we agreed, our decision was to be final; if not, an appeal was to be made to our respective chief engineers. A stipulation was made that in case of agreement, we were to sign the notes

conjointly, and send one copy to Mr. Kelliher, and the other to Mr. Grant. These instructions were faithfully and conscientiously carried out and final estimates were returned which were approved in Ottawa, and the contractors were paid off.

Q. Were the estimates changed to suit the quantities found by the arbitrators, Messrs. Kelliher, Grant and Schreiber?—A. Yes.

Q. What mileages were covered by them?—A. From mile 132 to mile 115, and from mile 85 to mile 66 on contract 10, and from mile 1 to mile 23 on contract No. 8.

Q. Did the arbitrators make many changes in the classification from that which your engineers made originally?—A. Yes, they made a good many changes.

By the Chairman:

Q. Did they put it up or put it down?—A. They put in up in one case.

By Mr. Gutelius:

Q. Do you remember what case that was?—A. It was in the case of borrow, where they raised it to fifty per cent solid and fifty per cent loose.

Q. And prior to that what was it?—A. All loose rock.

Q. Did you and Mr. Fotheringham cover the remaining cuts that were omitted by the arbitrators?—A. We covered the whole work that was not gone over by the arbitrators.

Q. So that between the arbitrators and you as their deputies, the whole of your district was passed upon by the arbitrators?—A. Yes.

By the Chairman:

Q. All interpreting the specification as you did?—A. Yes, of course there may be some of the work not finished, and in connection with that there may be something to do yet.

By Mr. Gutelius:

Q. Now Mr. Doucet, suppose the chief engineer, Mr. Lumsden, should have insisted with reference to your district on the interpretation that solid rock could only mean solid rock in masses of a cubic yard or larger, what would have been the effect?—A. The effect would have been to change about one million yards of solid rock into loose rock.

Q. And if you had received such positive instructions from the chief engineer, Mr. Lumsden, you would have been guided by them.—A. Had I received such positive instructions, there would have been nothing left for me to do as district engineer but to follow out the instructions of the chief engineer.

By the Chairman:

Q. You accompanied the present comimssion, Mr. Gutelius and myself, on the inspection over part of your district, did you not?—A. Yes.

Q. What part did you go over with this commission?—A. We went over part of contract No. 8 east of the Quebec bridge, and contracts Nos. 9, 10, 11, and 12 north of the Quebec bridge.

Q. Did this commission examine everything you wished them to inspect in order to arrive at a proper conclusion, so far as it was possible for them to do so?—A. Yes.

Q. There was nothing, was there, that you wished them to look at that was not examined by them?—A. No.

Q. Do you think that so far as the inspection could be made at this date, that the inspection made by this commission was sufficiently exhaustive?—A. For a general inspection, yes.

Q. This commission had excavations made at certain points along the line, had they not?—A. Yes.

Q. Were those made under your supervision?—A. No.

Q. Under whose supervision were they made?—A. We appointed the division engineers or resident engineers as the case might be, or the contractors' superintendents, to put in the excavations.

Q. They were made under your direction?—A. Yes.

Q. Assuming that you had had charge of the building of this railway for a company which had ample funds to construct a first-class railway with a four-tenths eastbound grade and a six-tenths westbound grade, and assuming that your instructions had been to build a first-class road as cheaply as possible without scamping the road or impairing its efficiency, could you have saved any money that was expended in the construction of the present Transcontinental road?—A. Yes.

Q. Will you give instances where, had you such control, and these instructions, you could have saved money?—A. Well, by the introduction of momentum grades.

Q. What do you mean by momentum grades?—A. A down grade which allows you sufficient momentum to climb up on a heavier grade than the standard grade.

Q. That is to say, if you assume a distance of a mile of four-tenths grade from one end to the other, instead of filling to a four-tenths grade the whole distance, you could have allowed the track to dip in certain places and thereby saved filling?—A. Yes, and saved cutting as well.

Q. So that an engine hauling a train loaded to the limit, to be hauled along a four-tenths grade, would pass over those dips without any additional assistance?—A. Yes.

Q. That is commonly called a velocity grade?—A. A velocity or momentum grade.

Q. It differs from a pusher grade in that, in the case of a pusher grade you must use another engine to help the train over the grade?—A. Yes, the same fully loaded train.

Q. And that is, as you have said, a saving which the commission could calculate from the material in this office, without your assistance?—A. Yes.

Q. Will you tell me anything else in which you could have made a saving?—A. I think if we had been allowed to use a little heavier curvature, we would have effected considerable saving without impairing the grades.

Q. And you say a saving could have been made in that?—A. Yes.

Q. What limit would you put upon that increased curvature?—A. I think we could have used eight degree curves occasionally at important points.

Q. By that you mean that the curves would have been greater?—A. The curves would have been sharper and would have enabled us to stick to the contour of the ground better than by using a lighter curve.

Q. And instead of having to cut into the hillsides as you have done?—A. Yes.

Q. Can you give me any other?—A. In places, we might have used some wooden trestles. Of course, the rule was laid down that these were not to be used.

Q. Is it not the practice of railway companies in construction, to first put in wooden trestles?—A. On all the roads I have been on, yes.

Q. Have you heard that wooden trestles have been put in on the Grand Trunk Pacific, west of Winnipeg?—A. I have heard so.

Q. Do you know that wooden trestles were put in by the Grand Trunk Pacific on their line from Fort William to Graham?—A. No.

By Mr. Gutelius:

Q. In all your experience as an engineer, in other railway constructions, you have built wooden trestles?—A. Yes.

Q. And where the ordinary excavated material did not fill openings except in cases where waterways required them?—A. Yes.

Q. And if wooden trestles had been used on your district, you would have been saved the construction of all the concrete arches?—A. Not all of them, but the important ones yes.

Q. Most of them?—A. Yes.

Q. You would have saved rock borrow in such hills?—A. Yes.

Q. You are now preparing a statement showing the saving that could have been effected if the policy of wooden trestles had been adopted?—A. That statement has been prepared already.

Q. That statement will represent the saving that might have been effected? —A. Closely, yes.

Q. Now, with regard to using cast iron pipes in farm crossings, if you had been building this railway economically would you have used these?—A. No.

Q. What would you have used there?—A. I think possibly we would have used these open culverts, stringers, and planking.

Q. And a very considerable saving might have been effected there?—A. Yes.

Q. Are you familiar with the term over-break in rock-cutting?—A. Yes.

Q. Did the over-break which was returned compare favorably with over-break on works which you have had charge of heretofore?—A. Yes.

Q. It was not any larger?—A. No, not after the changes that were made.

Q. Not after you arbitrated?—A. Not after the changes that were made during the classification.

Q. At La Tuque, if the matter were left to your own discretion and judgment in the matter of grade and alignment, what money saving would have resulted? —A. I certainly would have used a .65 grade instead of a direct four-tenths grade.

Q. What saving in distance would have been effected by a .65 grade?— A. About three miles.

Q. And how much money would have been saved?—A. About one million dollars.

Q. Knowing that a saving of one million dollars, as you have stated, could have been made at La Tuque by adopting a .65 grade, what action did you take? —A. The chief engineer being away from Ottawa at the time, I immediately wrote to the Commissioners.

Q. You wrote to the Commissioners direct?—A. Yes.

Q. Is the letter to which you refer a letter dated June 21st, 1906, and addressed to the Hon. S. N. Parent, Chairman of the Transcontinental Railway Commission, Ottawa?—A. Yes.

Q. Tell us the history of that in your own words?—A. On making the final surveys of the line at Ia Tuque, we found that by the actual levels we could not possibly get down to the level of the La Tuque flats, using a four-tenths grade, unless we took a very roundabout way, increasing the length of the line some three miles, and at a very excessive cost. The use of a direct four-tenths grade, also prevented us from using the Flats at La Tuque for a divisional point. We found that a direct line could be had by starting from Creek a Beauce to the La Tuque Flats using a .65 grade. I had the engineers look very carefully over the ground, and run a number of lines to prove that it would be in the interests of

the Commissioners to use this direct line. This .65 grade could not be considered altogether as a pusher grade. It was much shorter, had less curvature, and would cost much less to build than the four-tenths grade. It would also have enabled us to use the Flats at La Tuque for a divisional yard, whereas, by the adoption of the direct four-tenths grade, we were forced to move our yards two miles further to the west at what I might call an excessive cost. By adopting the .65 grade, we would have saved $300,000 on the construction of the yard alone.

By Mr. Gutelius:

Q. Do you figure that you gave the chief engineer and the Commissioners sufficient information to have enabled them to have made a proper decision?—A. Yes, and I know that they were in favor of adopting my suggestion, but for some reason unknown to me, we were informed that the line on a 0.65 grade could not be entertained.

Q. You produce as an exhibit, your letter of remonstrance to the Chairman of the Commission?—A. Yes.

Q. Do you remember the bridge over the Boucanne River?—A. Yes.

Q. It is a high trestle bridge on a tangent?—A. Yes.

Q. The contour of the ground at that crossing did not appear to lend itself to a straight bridge across?—A. No.

Q. Will you explain what would have been the economical way of crossing that river, and why the economical method was not followed?—A. We were not allowed to use curve bridges.

Q. And those heavy rock cuttings you see at each end of that bridge were occasioned by the instructions to build the bridge on a tangent?—A. Yes.

Q. With reference to the bridge at Boucanne River, do you see any objection to building a bridge of that character on a curve?—A. No.

Q. Is the Boucanne Bridge the only bridge where money was expended to escape constructing bridges on curves?—A. No, the Milieu River Bridge is another.

Q. Have you any gravity water supplies on your district?—A. Yes, we have three.

Q. Where is the most expensive of these gravity water supplies situated?—A. At Roberge.

Q. What did that cost?—A. $11,375.00.

Q. Do you not think that $11,375.00 is too much capital expenditure for a gravity supply at a wayside station?—A. Yes .

Q. What figure would you suggest as being about right for a supply at such station?—A. The maximum would be from about $7,000 to $8,000.

Q. Had you any instructions as to the limit you should go for obtaining water supplies?—A. We were instructed to expend as high as $15,000 to secure gravity supplies.

Q. You are familiar with the pusher grade from the St. Francis River west?—A. Yes.

Q. What is the grade on that river?—A. 1.1 westbound.

Q. What is the rate of grade that could be used if the pusher engines were of the same size as the leading engine handling a six-tenths train?—A. 1.47.

Q. If a 1.47 had been used instead of a 1.1 grade, what saving might have been effected?—A. Between $43,000 and $44,000.

Q. Would it have been as good a railroad?—A. Yes.

Q. And if you had been building a railroad, using your own judgment and authority, would you have used a steeper grade?—A. Yes.

Q. What is the weight of rails you used in your sidings and yards?—A. Eighty pounds, the same as on the main line.

Q. If you were constructing this railroad economically, would you have used

eighty pound rails in sidings and yards?—A. No, we recommended that fifty-six pound rails should be used on the sidings.

Q. Do you believe that the efficiency of the railroad would have been quite as good if fifty-six or sixty pound rails had been used in the sidings and yards?—A. Yes.

Q. You know the Batiscan River Bridge?—A. Yes.

Q. Suppose you had been permitted to use a momentum grade at that point, have you any idea of what saving might have been effected?—A. Between $20,000 and $30,000.

Q. Would you have had as good a railway?—A. Yes.

By the Chairman:

Q. If these changes that you speak of, had been made in the construction of this road, would you have had as good a railway for practical commercial purposes as you have now?—A. Yes, as far as the present efficiency of the road is concerned.

Q. And you could haul the grain of the west just as well over it as you could over the present road?—A. You could haul the same loads.

By Mr. Gutelius:

Q. You are familiar with the book of instructions issued by the Commission to the engineers?—A. Yes.

Q. In these instructions you are limited by article 26 to six degree curves?—A. Yes.

Q. And no matter what expensive construction would be involved by the use of six degree curves?—A. Yes.

Q. As an engineer did you consider it safe to issue instructions of that character before the country had been exploited?—A. No.

Q. You consider it was dangerous to issue such instructions?—A. Yes.

Q. In what locations in your district could you have saved large sums of money if you had been permitted to use sharper curvatures?—A. Principally along the Milieu River Valley and along the St. Maurice Valley.

Q. Without going into definite estimates, could you have saved tens or hundreds of thousands of dollars if the curvature along these two rivers had been increased to between eight degrees and ten degrees?—A. I should say between $125,000 and $150,000 might have been saved in these two locations.

Q. Would the efficiency of the railway have been lessened by increasing the curvature to eight degrees?—A. No.

Q. Do you know of curves of that character being used on main lines of railway where the railway does not suffer thereby?—A. On the work I was on for the C.P.R. at Jackfish Bay, on the main line we had an eight degree curve outside a tunnel which certainly did not impair the efficiency of the line in any way.

Q. So that the saving which might have been effected along Milieu River and the St. Maurice River would have been another item in the economical construction of this line, if you had had your own way?—A. Yes.

By Mr. Gutelius:

Q. Referring again to momentum grades, describe why the introduction of momentum grades would have been economical?—A. In a letter which I wrote to the chief engineer's office, I pointed out that very considerable sums of money could be saved by using momentum or velocity grades, as we would have been enabled, in many cases, to reduce both hills and cuttings by introducing virtual grades, rather than uniform actual grades.

Q. What is a momentum or equivalent grade?—A. A momentum grade means that advantage is taken of the fact that a train, descending a grade accumulates energy which increases the hauling capacity of the locomotive by an amount dependent on the length of falling grade and the velocity of the train, and this extra hauling capacity will protect the introduction of steeper grades than the engine is theoretically loaded for.

Q. That is, if your ruling grade is four-tenths, and you approach the foot of a one per cent. hill, at a speed of thirty miles an hour, you would be able to pull over that 1 per cent. grade your four-tenths load, provided the grade is no longer than 1,000 or 1,500 feet?—A. About 1,500 feet.

Q. So that you could have reduced many heavy cuttings by raising the grade in these cuttings from ten feet to fifteen feet?—A. Most of our summit cuttings could have been reduced by one-half.

Q. And in the matter of fills, a momentum grade policy would have enabled you to introduce many long sags?—A. Yes.

Q. And save as much as ten feet or fifteen feet of filling?—A. Yes.

Q. Have you any idea, Mr. Doucet, of the percentage of the cost of filling that might have been saved in your district if a momentum grade policy had been adopted?—A. I have looked to that and I think that between seven per cent. and ten per cent. of the cost of grading could have been saved.

Q. Without impairing the efficiency of the road for all practical purposes?—A. Yes.

Q. It has been said that the reason for not using wooden trestles was on account of their excessive cost, as figured by the cost of timber in these tenders?—A. That is not my understanding. The policy of the Commission that wooden trestles would not be used, was well known before the tenders were called for, and it was expected that only a very small amount of timber would be used in this construction.

Q. What was the price per thousand cubic feet, board measure, asked in some of the tenders?—A. I think $80.00. When contractors see that quantities are small they generally put a high price opposite, as it does not affect the grand total.

Q. May we conclude from what you have said, that if the policy had been to build wooden trestles, a tender very much lower than $80.00 per thousand feet, board measure, would have been put in?—A. Yes, because any contractor would know that if he put in a big price for timber on a large quantity, his total might be affected to such an extent that his tender might be run up high.

Q. And no engineer, would under such circumstances, accept a tender for $80.00 per thousand, board measure, for timber?—A. No.

Q. What would be a fair price for the timber on contract No. 8?—A. Between $40.00 and $45.00 per thousand.

Q. So that in our comparisons, it would be fair for us to use the price of $45.00 per thousand for frame trestles?—A. Yes, $45.00 or $50.00.

Q. Why did you put in a double track yard between Cap Rouge yard and Cap Rouge viaduct?—A. At the time I took charge of that portion of the work, the construction of the double track was already under way, and I understood from Mr. Hoare, my predecessor on that work, that the line was to be a double-tracked line between the yard and the Cap Rouge viaduct. I may say that about thirty per cent. of the work had been done at different points when I took the work over from Mr. Hoare.

By the Chairman:

Q. This cut is on the north side of the river and about one mile from the Quebec Bridge?—A. Yes.

By Mr. Gutelius:

Q. You are familiar with the Ludger Noel yard?—A. Yes.

Q. I notice that this yard was constructed with side walls eleven feet higher than the standard plan, why was that done and who is responsible for it?—A. My then assistant, Mr. C. L. Hervey, was responsible for the extra height of the walls; it was done without my sanction or knowledge.

Q. About how much additional money was expended at this point, more than would have been expended had you been consulted?—A. $14,000.

By the Chairman:

Q. Was the question of economy made a cardinal feature in the construction of this railroad?—A. No; I do not think it was.

Q. Did the Commission, so far as you know, ever intimate in any way that it was desirable that the engineers should carefully consider every step in the construction of the road, with a view to spending only the amount of money that was reasonably necessary?—A. No; we had no communication from the Commissioners to that effect.

Q. Are you familiar with the Feher nutlocks that were supplied to your division?—A. Yes.

Q. Describe that nutlock?—A. It is a piece of tin fitting over the nut with the ends turned up, which rots away in a year or eighteen months after it has been put in place.

Q. So that you consider that any money expended on these nutlocks might have as well been thrown away?—A. I may say that half of them are out of the tracks now.

By Mr. Gutelius:

Q. What would you say as to the advisability of using 1 x 2 x 4 concrete for the Riviere du Sud arch. Do you think concrete of that strength was necessary?—A. Yes, because that is one of the worst river crossings we had in the district. There are about 300,000 logs driven annually down that river, and the fall from one end of the culvert to the other is about ten feet. The water rises up to the spring of the arch at flood water. I consulted all my engineers at the time of the construction, and we all came to the same conclusion, namely, that a stronger mixture than 1 x 3 x 6 should be put in at this place.

Q. The extra strength was on account of possible erosion by logs and ice?—A. Yes.

Q. Don't you think that one foot or eighteen inches of 1 x 2 x 4 concrete would have answered the purpose quite as well as to use that mixture throughout?—A. Well, we have there the example of the logs striking the solid rock at the outlet of the culvert and gouging pieces of rock out of the face of the bluff. It seems to me that these logs would have had the same effect on the side of the culvert as they had on the solid rock.

Q. What is the difference in price between 1 x 3 x 6 and 1 x 2 x 4 on that contract?—A. The difference in price was $5.00 per yard.

Q. There was considerable discussion over the concrete used in this arch?—A. Yes.

Q. What was the ultimate outcome of that discussion?—A. The difficulty was that the contractors met the chief engineer in Ottawa, and an agreement was arrived at that this concrete should be returned as 1 x 3 x 5 mixture at a price of $12.00 per yard. I may say that this agreement has since been rescinded and the concrete is returned as 1 x 3 x 6 at $10.00 per yard.

Q. The matter is still in controversy?—A. Yes.

Q. Referring again to overbreak, in classifying overbreak, did you allow a percentage of loose rock as provided for in the specification where it says that the material shall be classified as it falls in the cut after the shot is fired?—A. Yes.

Q. You arrived at that as closely as it could be estimated?—A. Yes. In some cases I may say that where loose rock does not show in the returns, it was due to the fact that the overbreak was really a rock borrow and used as rip-rap or protection of embankments in adjacent fills in lakes or rivers.

Q. Suppose that in a solid rock cut, twenty-five per cent. of the total quantities were returned as solid rock overbreak, would that classification be in accordance with these speciifcations?—A. No; under ordinary circumstances a proportion of the overbreak should have been returned as loose rock.

The witness was not further examined for the present.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION, OTTAWA, OCT 11th, 1912.)

(EVIDENCE TAKEN IN THE OFFICES OF THE NATIONAL TRANSCONTINENTAL.)

A. G. MACFARLANE, sworn.

By Mr. Gutelius:

Q. Give us, in short form, your experience prior to your going with the Transcontinental Railway?—A. I began in the year 1882 on the Kingston and Pembroke Railway, and I worked there as rodman, and was there for four years—worked as rod man and instrument man latterly.

Q. And where else?—A. From there I was on the Baie des Chaleurs for two years, and I was on the survey of the Rapid Transit road, Cleveland, Boston and New York—six months there—and I was on a branch line of the Canada Atlantic, was there about a year, and then I was up on the main line of the Ottawa, Arnprior and Parry Sound, eight years, and then I was down on the Mainland, Nova Scotia, for two years, and then on the Algoma Central for nearly a year, and then I went on the Canadian Northern and was there four years, and then I came on to this road.

Q. So that you have had a very general experience in surveys and construction of railroads in Canada?—A. Yes.

Q. During the past 30 years?—A. Yes.

Q. What positions, did you fill on the N.T.R.?—A. The first position I was locating engineer: when construction started I was division engineer for division 7, on District F, and was there for two years, call it as divisional engineer, and I was about three months assistant district engineer on District F. and then I was district engineer on B. for one year, and then I was inspecting engineer for about two years, and then I was on F., and was on F. for about a year.

Q. Put on F. as district engineer?—A. Yes.

Q. Which position you still hold?—A. Yes.

Q. You were actively engaged as divisional engineer while the contractors were excavating Division 7?—A. Yes, or a good portion of it.

Q. Which was the time that the first discussion on classification was in progress?—A. Yes.

Q. You were at the meeting at Kenora?—A. Yes.

Q. Who were present at that meeting of the leading engineers and commissioners?—A. The chief engineer of the work, Mr. Hodgins, Commissioner Young, John Heaman, and I think B. J. McIntosh: I think that was all.

Q. Was there any Grand Trunk representative?—A. No.

Q. When you left that meeting, what was your understanding in connection with the handling of material excavated outside of the sections?—A. My understanding was that there was a portion of that would be allowed as solid rock, other than what you could attach to the specification, but as to what it was going to be, there was nothing definite.

Q. You understood that a more liberal classification was going to be given to overbreak than provided in the specification?—A. Yes.

Q. Did you ever receive any definite written instructions after that meeting?—A. No. nothing definite.

Q. Up to the time the work was finished, no instructions came from Ottawa or elsewhere, so far as you know?—A. I think Mr. Lumsden, after I left there, sent instructions—I know he did, because I have seen them—which appeared to be founded on the specification alone.

Q. This meeting was February 8th, 1908?—A. Yes. There were no instructions came out until after I left, as regards the general interpretation of the specification by Mr. Lumsden.

Q. In the matter of overbreak?—A. No.

Q. There was nothing in Mr. Lumsden's blue print, or the instructions, in connection with overbreak, was there?—A. No, I do not think so; that is my remembrance of it: the documents would show.

Q. With reference to the specifications governing classification, do you understand that these specifications would enable an engineer to classify soft mud as loose rock?—A. No.

Q. The plough test, then, is a question of hardness, or difficulty in removing on account of hardness, or the stones it contains?—A. Yes, according to the specification.

Q. Do you understand that has been generally lived up to on District F?—A. I do not think it has been lived up to, right to the dead—I mean the test.

Q. Have you corrected anything that you have discovered in that classification, so that it is reasonably within this specification?—A. Yes, I have lately, since the Commission was there, but I ddi not measure the portion on the McArthur contract.

Q. With reference to the McArthur contract, you have made no corrections there, for what reason?—A. This matter has been handled by the arbitration, and I did not even examine it with the idea of making corrections, because it has been handled by the arbitration and settled.

Q. With reference to the arbitration, and your general knowledge of District F., do you consider that the arbitration results are within reasonable limits?—A. Yes. I must qualify that, probably, as to the question of assembled rock, which I never understood, and do not understand yet.

Q. You refer to diagram 5 in Mr. Lumsden's interpretation, in connection with solid rock?—A. Yes, a diagram without any scale, or without any clue from which to judge what was meant.

Q. Assuming that the stones shown on diagram 5 are all less than a cubic yard, and that the interstitial spaces are filled with clay and sand, what would you be compelled to classify that material as, under the specifications and contract, without reference to Mr. Lumsden's interpretation?—A. And the stones touching, then I would call it loose rock: that is all I would do.

Q. Under classification of solid rock, which reads, "Will include all rock found in ledges or masses of more than one cubic yard", what is your understand-

ing of the kind of rock covered by the word "masses"?—A. My opinion would be lumps of rock.

Q. Lumps of rock over a yard, whether they be in the form of boulders or large rock fragments?—A. Yes. That is my opinion, as an engineer, based upon the specifications, without reference to any instructions.

Q. The overbreak on District F. on the McArthur contract, we noticed in our recent trip, is a very serious matter. What proportion of the total solid rock do you think is overbreak?—A. Thirty to forty per cent.

Q. Have you ever, in your experience as an engineer, encountered any rock excavation that had anything like such a quantity of overbreak?—A. No, I never did.

Q. How, in a general way, do you account for this large amount of overbreak on this contract?—A. In the first place, the cuts are very much larger than anything I have ever seen before, and the rock is of a very seamy nature, more so than any other rock I have ever seen before. Their method of taking it out was something new to me, the putting down of holes, say anywhere from three-quarters depth of a hole to the full depth of a hole, back from the face and springing them, sometimes three and four times, heavily springing them.

Q. Just explain what springing a hole consists of?—A. In the first place, you have a limited space: you have just got the hole to work on, and you put down all the dynamite you can into that: sometimes you only put two or three sticks at first, and have a drop fuse, a small fuse lit and dropped into the hole: they let that off, and it tears it up in the bottom, and after that cools off they put some more in; they can probably put five or six times as much the second time, and that tears out quite a hole below, and they will squib this the third time before they get it large enough so as to get enough explosive there to take that out. In the course of this springing, where you have seamy rock, very often it opens up the seams, and when you go to load this hole afterwards, a great deal of the power escapes through the seams. You do not get the result you probably would expect. Possibly the next hole you squib the rock will be of a more solid formation, not so many seams, and you put down your explosive into that, and it tears it all to pieces. That is what makes it so difficult for an engineer to say to a contractor—in fact, you cannot say to a contractor—what is necessary to load in a hole, because you do not know the conditions below.

Q. When you are in that condition of mind, however, you are assuming that it is impermissible to blast with deep drilling?—A. Yes.

Q. What depth of hole is a reasonably good sized shot?—A. Well, 25 feet should be the extreme, I should think.

Q. With a hole 25 feet deep, say 25 feet back from the face—A. I do not think they very often did it that far: say 18 or 20.

Q. Well, say 18 or 20 feet back from the face, what quantity of dynamite would be used in the final blast, roughly?—A. I think we used to figure on about three-quarters of a pound to a pound—about three-quarters of a pound of dynamite to a yard of rock, so as to displace it. It would be about 500 or 600 pounds of dynamite.

Q. Did you ever see rock blasting done before where shots of that size were used?—A. No.

Q. How was the blasting of rock excavation handled on work with which you were previously connected?—A. We used to put down about three holes, probably back eight feet from the face. The cuttings were lighter, and we would strip it very lightly.

Q. About how many pounds of dynamite would be used in this operation?—A. Pretty near the same amount per yard, but it shatters much smaller, and it was distributed better, you see: it would be in three holes.

Q. And about how many pounds?—A. As near as I can remember, about three-quarters of a pound to the yard is what we always used to figure on on roads I have been working on.

Q. So that a blast six feet in depth, set back four feet would take 15 to 20 pounds of powder.—A. Yes.

Q. If that character of rock drilling and blasting had been used in this work, would it have been possible for them to make so much overbreak?—A. No, it would not.

Q. Which of these methods do you think the original specifications contemplated.—A. The method of careful blasting.

Q. By careful blasting, you mean numerous small shots—A. Numerous small holes and shots, or the old-fashioned method.

Q. What is a reasonable percentage of overbreak —A. From my knowledge, as an engineer on other works, I should say that 25 to 30 per cent, with the modern method of blasting, is about right for overbreak.

Q. What percentage of overbreak would you expect if they used the old-fashioned method of blasting —A. I do not think it would go over twenty per cent.

Q. Suppose that you could have limited the depths of the shots on those big cuttings on District F. to twelve feet, what effect would that have had on the overbreak?—A. It would have decreased the overbreak.

Q. Down somewhere to near what the old-fashioned method would have given you?—A. Yes.

Q. Do you remember the big cutting at mile 139?—A. Yes.

Q. What was the greatest depth of that cutting at rail level?—A. I do not know that: about 40 feet at the widest portion: 35 to 40 feet.

Q. The amount of overbreak in this cut, I see from the records, is over 28,000 yards, which is practically the same as the amount of rock inside of the section.—A. Yes.

Q. How do you explain this?—A. Mr. Poulin, the district engineer, said he wanted to get the track out to the Winnipeg river, in order to put the bridge in, and it was necessary to have all these cuts out as rapidly as we could tear them out. In talking the situation over we discussed the matter as to what they should be allowed for that.

Q. You discussed the matter with him?—A. Yes; and on account that we required all this material for fill and the long distance, there was a scarcity of filling material, and the long haul would bring the train haul material very nearly up to the price of solid rock, as far as we could see, and, taking these things into consideration, he thought the contractor should get solid rock prices.

Q. And the contractors were so advised?—A. Yes.

Q. And you finally paid them for all the rock excavated, which included this 28,000 yards of overbreak?—A. Yes.

Q. What rate did the subcontractors receive for removing this solid rock?—A. About $1.25 a yard.

Q. And the main contractor, McArthur, received how much?—A. $1.70. He had a sub between him and the other man at $1.50.

Q. But there was a profit between McArthur and the first subcontractor of 45 cents a yard?—A. The man that did the work, yes.

Q. And, as there is practically 60,000 yards in the cut, the profits accruing to the original contractor and the first sub amounted to about $27,000; is that right?—A. Yes; that is between him and the first sub.

Q. So that the profits are equal to about one dollar a yard for all the overbreak in that?—A. That is the profit on the whole amount.

Q. Did the crowding of the rock cuttings and the heavy shooting actually help in the completion of the work?—A. No.

Q. If it were to be done over again, you would not have concurred in rushing the work in that manner?—A. No; I never did, and do not approve of it.

Q. You felt at that time that you were opening a door to the contractor that was really dangerous?—A. Yes.

Q. And you are not surprised now, when you are faced with this 28,000 yards? —A. No. I do not think he really wanted to do it, but they were hounding him to get it done.

Q. Who was hounding him?—A. It came through the chief engineer. As far as I know, I think the Commissioners were at it, too. The chief engineer sent out a regular list of cuttings, which you would be surprised at, telling us to tell the contractor that he must move so many thousand yards per month out of each cutting, and that was done some time in 1907, in order to get that work done there, and the man that was behind the whole thing was Mr. Morse, of the Grand Trunk Pacific.

Q. Why was Morse rushing it, do you think?—A. We all thought he was going to blame the tie-up, so to speak, on the National Transcontinental instead of the Grand Trunk Pacific, that they would be ready with their piece between Fort William and Graham, and we would not be done with ours, and the grain would be held up on account of the road not being finished.

Q. So that it was a race between the Lake Superior branch of the Grand Trunk Pacific and the N.T.R. between Graham and Winnipeg?—A. Yes, to get the wheat from the west to Fort William.

Q. What was the actual result?—A. The actual result was that in 1909, when the rock was all ou'—it was a year and a half after that before they got it open—something like that. I think the rock was all out in the spring of 1909.

Q. When did the first wheat go over?—A. Some time in 1910; I think it was something like a few hundred bushels was put over.

Q. Just enough to say that they hauled some in the fall of 1910, whereas this extra expenditure was made about two years before?—A. Yes.

Q. Referring to overbreak in general, and the partial understanding that you had at Kenora, how did you return overbreak after that meeting?—A. We returned it as overbreak.

Q. As solid rock overbreak?—A. Yes.

Q. That is, you measured every yard that was taken out of the cut, and returned it at solid rock prices?—A. Yes. This was done with the full knowledge of the district engineer, and I understand the same knowledge of his superiors.

Q. As a divisional engineer on whom the responsibility of classification rested, did you feel that the placing of this overbreak in the solid rock column settled it and ended it?—A. No, I never felt that.

Q. What else could happen?—A. All estimates must be finally referred to the chief engineer for his signature; we never knew what he was going to do.

Q. And by his signature, you mean his approval?—A. Yes, his final approval.

Q. Was it given to him in such shape that he knew what part of the solid rock was overbreak?—A. Yes, I think so.

Q. In any event, you rested your case on the action of higher officers, and were satisfied in your own mind that they were familiar with your intentions?— A. Yes.

Q. You were ready at all times to accept a criticism or instructions in connection with overbreak?—A. Yes.

Q. And you were particularly ready in that, when you refer to the clause that says that overbreak shall be paid for as it falls in the cut, were you not?—A. Yes.

Q. And you rather expected that the chief engineer's office would ask for, or demand, a portion of loose rock in the overbreak?—A. That is at the first, before

they let it drag on so long, I expected that, but when these estimates were coming in, and the contractors were being paid for them, it looked as though they were not going to do anything with it.

Q. Then you assumed that the chief engineer proposed to let it go through, fully aware of what he was doing, as solid rock?—A. Yes.

Q. Now, by reference to the specification, Article 38, where it says, "The classification of material from slides shall be made by the engineer, and will be in accordance with its condition at the time of the slide, regardless of prior conditions," if you were simply given this Article 38 as a guide for slides in rock cuttings, would you not be compelled, under it, to classify that portion of the overbreak where the pieces were less than a cubic yard as loose rock?—A. Yes.

Q. How would you arrive at that in a practical way?—A. We could arrive at it by giving a percentage.

Q. Suppose we had a cut that contained 1,000 yards of overbreak, and you, in your judgment, concluded that 500 yards of that overbreak was loose rock, and suppose the entire cutting including overbreak amounted to 4,000 yards, based upon cross-section measurement, how would you return that 500 yards of loose rock, and would your returns increase the total calculated quantity in the cut?—A. I think that 500 yards of solid rock measurement is to be estimated as loose rock; give them the explanation of it, or otherwise give them 750 yards.

Q. Then you would increase the quantities in the cut 250 yards?—A. Yes, with an explanatory note.

Q. And you would make an explanatory note on your return?—A. Yes.

Q. The reason for this explanatory note is that that method is not provided for in the specification?—A. That is right.

Q. Then, if you hewed to the specification closely and measured in excavation only, you would not be justified in giving a yard and a half for a yard?—A. No.

Q. Without special authority, or this explanatory note?—A. No.

Q. Referring again to overbreak while this work was in progress, what was your habit, and that of your engineers, when you discovered contractors shooting these tremendous blasts?—A. The engineer notified the contractor that there would be reductions if he did not change his method and did not use more caution, and they promised to, and they claimed they used all the caution they could, and the results were not any better. We did deduct quantities from some of the cuttings on account of heavy blasting.

Q. Ought you not to have reduced the yardage of overbreak for all material that was wasted?—A. Yes.

Q. As divisional engineer, in looking over your quantities, I find that you did not grant any loose rock in many cases of overbreak?—A. No.

Q. What protection have you for not doing so?—A. At the Kenora meeting I got the idea that we would receive some further instructions in connection with overbreak, and, pending the receipt of such instructions, I returned the whole amount of overbreak as solid rock, expecting that it would be corrected to conform with whatever instructions the chief engineer might make.

Q. You are familiar with this little book of instructions to civil engineers on the N.T.R.?—A. Yes.

Q. In the matter of curvature, on page 38, it is laid down "That the maximum curve on a level shall not exceed six degrees." Do you think that this bald statement or instruction was a wise one?—A. No.

Q. Why?—A. Well, it might run you up into some fearfully heavy work, where a very slight deviation in the curvature might avoid it.

Q. Then the instruction re curvature should have had some monetarial limitation?—A. Yes; something of that description.

Q. This positive rule gave the locating engineer no discretion when he was three weeks away from the chief engineer's office, even though he would find a place where a large saving might have been effected?—A. Yes; that would happen when locating on a ruling grade.

Q. What approval did location plans receive from higher officers?—A. Well, they were referred from the locating engineer to the district engineer, and he is supposed to have recommended it to the chief engineer, and he referred it to his assistant, I think.

Q. In the line that you located, did you receive any criticism in the matter of reducing the cost of the line from your higher officers?—A. No, not that I know of. I am pretty sure I did not receive any.

Q. What would you say about the 600 feet of tangent between curves?—A. That is something that I would insist upon, with monetary limitations.

Q. It is unfortunate that they did not give monetarial limitation to those tangents?—A. Yes. I think that where you have a particularly rough country, you can afford to figure on less speed of your trains; therefore you could increase your curvature, shorten your tangents and introduce compound curves.

Q. Don't you think that broken-back curve provision is a mistake?—A. I do. Having proper adjustment between curves, I do not see that it makes any difference.

Q. Article 29 says, "Every effort will be required to secure level track at stations"; is that a practical instruction for a locating engineer?—A. No.

Q. Why?—A. I think on the grades we had there we could put a station almost on our maximum four-tenths, without any very great inconvenience.

Q. And if you followed this instruction you would have had to locate your stations before you located your line?—A. Yes; you would always have to have that in your mind when locating.

Q. Which is an impracticable situation?—A. Yes.

Q. If you were designing this railway, and were given the limiting grades, in the interest of economy would you not have used wooden trestles, for the first eight or ten years at least, at certain points?—A. Yes.

Q. If that method had been adopted, where would the greatest saving have been effected?—A. We would have saved building the arches, and in some cases would have saved a large amount of money, where the filling was made of rock borrow.

Q. Can this commission arrive at a reasonable estimate, through your offices, as to what saving might have been effected, if the policy of building wooden trestles had been adopted?—A. I think so.

Q. If you had been given these limitations in the matter of grade and haulage capacity, would you, in the interest of economy, have introduced momentum grades?—A. Yes.

Q. It is possible to save a considerable amount of money in cuttings and fills, and still get the same haulage capacity?—A. Yes.

Q. And still have what are known as short sags or humps?—A. Yes, particularly going over short summits.

Q. Would that change amount to very much on the portion of the line which you located?—A. I guess half of my location was on maximum grades that you could not have touched very well.

Q. But through level and undulating country, it is a saving proposition?—A. Yes.

Q. And is not detrimental to the railway generally?—A. No.

Q. Did you make an examination of the C.P.R. engine house and engine terminals in Ottawa today?—A. Yes.

Q. How does that class of house compare with the houses which you built?—A. For efficiency and for the purpose for which it was built, I think it compares very favorably.

Q. In any event, it is quite as good?—A. It is quite as good; that is, in my opinion.

Q. Did you notice the coaling plant?—A. Yes.

Q. When I tell you that that coaling plant cost less than $10,000, do you not consider that it might have been better to have followed that design than to have built the very expensive storage bunks that you have at Graham and Transcona?—A. Yes, I think something similar to that would have been better.

Q. How much money would you have saved at each point?—A. About $18,000.

Q. Suppose you had been given District F to locate and build, with a limitation of a virtual four-tenths grade against eastbound traffic, and a further limitation of $60,000 per mile cost, could you have built such a railroad?—A. I think I could have given it a pretty close shave.

Q. What are the things that stand out most prominently in your mind as the difference between such a railroad and the one that has been built?—A. Well, having such closely defined instructions about curvature and grade: sometimes by an additional few hundredths on a momentum grade, I think it would be almost as serviceable a road, and you could save thousands of yards: by putting in a little sharper curvature you could save thousands of yards, and by putting in virtual grades you could save thousands of yards, and have it as efficient as it is today.

Q. You would not have graded second sidings?—A. No.

Q. You would have used wooden trestles liberally?—A. Yes; every place where we thought there was no danger of being shot out. If we had been allowed to put in lighter steel in sidings we could have saved a lot of money.

Q. How about the entrance to Winnipeg?—A. If we could have made a feasible arrangement with the Canadian Northern, for the present, at least, that would have been the proper way to enter Winnipeg; nor would I have built the Transcona shops, nor would I have built the double track over the Sturgeon river between Lake Superior Junction and Graham, nor would I have built the double track from Transcona shops in to Winnipeg.

Q. And you would have fixed the overbreak feature, too, if you had to stay within $60,000 a mile?—A. Yes, if they had left it to me there would never have been more than 25 or 30 per cent at the outside.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION; EVIDENCE TAKEN IN TRANSCONTINENTAL OFFICES, OTTAWA, JANUARY 16th, 1913.)

ERNEST P. GOODWIN, sworn.

By the Chairman:

Q. You are one of the inspecting engineers of the Transcontinental Railway are you not and have been inspecting engineer since when?—A. From the beginning of January, 1912.

Q. You were formerly in the employment of this Commission were you not?—A. Yes.

Q. In what capacity?—A. As locating engineer and division engineer.

Q. Where were you division engineer?—A. On contract No. 14.

Q. Where is that?—A. District "E" Abitibi Lake.

Q. How long were you division engineer?—A. For about a year.

Q. And during that time did you acquire any experience in classification on the division?—A. Yes, during that year they were grading and I was classifying the work.

Q. In October of the year 1912 you were instructed to go to what contracts?—A. Nos. 13, 14 and 15.

Q. To contracts Nos. 13, 14 and 15 to inspect the work and to make plough test for the purpose of checking the classification which had been made of the grading on those contracts, were you not?—A. Yes.

Q. Did you follow your instructions?—A. I did.

Q. When did you go to that country?—A. I do not know the exact date. Some time in the month of October.

Q. How long were you up there?—A. Just a month. Between September 18th and October 20th.

Q. Did you make any plough test on the work?—A. I made two plough tests, one on contract 14 and one on contract 15.

Q. Did you make a sufficiently extensive plough test to satisfy yourself as to how the excavation should be classified on those contrasts, 13, 14, 15 and 16?—A. I consider I did.

Q. And did you make a reclassification of the grading on contracts 13, 14, 15, and 16?—A. No; I made a report on what I considered,—

Q. Did you make a report on the character of the country and classification?—A. Yes.

Q. Have you a copy of your report?—A. I have and I produce it. It is as follows:—

"From my plough tests and what ploughing had been done during the progress of the work, I am convinced that there is very little, if any, clay on this district too hard to plough.

"The following are the estimates as they stand at present:

Contract No. 13 (*District "CD".*) Macdonell & O'Brien, Contractors.

Solid rock	9,565	cubic yard—	1 per cent
Loose rock	65,363	" " —	9 " "
Common excavation	671,108	" " —	90 " "

Contract No. 14, Grand Trunk Pacific Railway, Contractors.

Solid rock	98,131	cubic yard—	2 per cent
Loose rock	2,078,769	" " —	48 " "
Common excavation	2,197,714	" " —	50 " "

Contract No. 15, E. F. & G. E. Fauquier, Contractors.

Solid rock	25,363	cubic yard—	1 per cent
Loose rock	1,253,395	" " —	49 " "
Common excavation	1,262,204	" " —	50 " "

Contract No. 16, O'Brien, Macdougall & O'Gorman, Contractors.

Solid rock	11,224	cubic yard—	.5 per cent
Loose rock	894,955	" " —	34 " "
Common excavation	1,723,147	" " —	65.5 " "

"*Contract No.* 13

"The work on that portion of Contract 13 which is in District "CD" was done during the present season, and the classification was done in strict accordance with the specifications, i.e., all material that was not too hard to plough was classified as common excavation, while mixed material was classified a certain percentage of loose rock according to the amount of stone it contained and the nature of the material.

"Ledge and boulders over one cubic yard only were returned as solid rock. No assembled rock was allowed as solid rock. The result of this classification is that only 9 per cent of the whole was returned as loose rock.

"*Contract No.* 14:

"The character of the country is very much the same on all of these contracts and had the same systems of classification been carried out on contract 14, as on contract 13, the difference would have been that 1,641,308 cubic yards would have been returned as common excavation instead of loose rock.

"Making an allowance for any slight difference in the character of the country and for a liberal classification 20 per cent of loose rock would be sufficient.

"Instead of 2,078,769 cubic yards of loose rock only 874,822 cubic yards would have been returned, making a difference of 1,203,847 cubic yards. The difference in price between loose rock and common excavation is .31c per cubic yard, making a total of $373,192.57 on the whole contract. The amount of over-classification in solid rock is only small,—some assembled rock was allowed but in no great quantities.

"*Contract No.* 15:

"Applying the same rule to contract 15, i.e., allowing 20 per cent for loose rock, the difference would be 745,003 cubic yards would have been returned as common excavation instead of loose rock, making a difference of $223,500.90. The same remark in regard to solid rock applies to this contract as well as contract 14.

"*Contract No.* 16:

"Applying the same rule to this contract, the difference would be 369,090 cubic yards, which would have been returned as common excavation instead of loose rock, making a difference of $155,017.80. Solid rock on this contract same as the others.

"This would make a difference of $751,711.27 on the three contracts."

(NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATION COMMISSION. OTTAWA, SEPTEMBER 5th, 1912.)

Present: G. LYNCH-STAUNTON, K.C., *Chairman;* F. P. GUTELIUS C.E., *Commissioner.*

GORDON GRANT, chief engineer National Transcontinental Railway, sworn:

By Mr. Gutelius:

Q. You are chief engineer of the National Transcontinental Railway and have been engaged in engineering work on this railway since when?—A. Since May, 1905.

Q. You were appointed chief engineer of the National Transcontinental Railway when?—A. In July, 1909.

Q. Refer to the specifications attached to the contract, and under the heading of "Classification," paragraph 34, you will see the expression "Solid rock excavation"—the classification of solid rock has been one of the most important items in railway construction in which you have been engaged during your experience as an engineer?—A. It has.

Q. Has the term "solid rock" in the various specifications under which you have worked been interpreted practically in the same way?—A. It has.

Q. What other specifications are you familiar with?—A. I am familiar with these specifications — I worked on railways in South America, the Intercolonial Railway specifications, the specifications of railways in the United States, and the C.P.R. specifications, and the Transcontinental specifications.

Q. And in your experience in these different specifications you have found that solid rock generally has been considered the same in all of them?—A. In all of them, yes.

Q. Generally?—A. Yes.

Q. A new item, Mr. Grant, under "solid rock" appears in the interpretation of "solid rock" in the Transcontinental specifications, which is generally known as "assembled rock"?—A. Yes.

Q. Did you ever come across the term "assembled rock" before?—A. I did not.

Q. In the other specifications with which you are familiar did you have any trouble to classify all sorts of material without using such a classification as "assembled rock?"—A. I never classified anything else as solid rock on any other road except ledge rock and boulders over a yard.

Q. And you never found it necessary to find any kind of solid rock such as assembled rock?—A. No, because the specifications of the other roads as a rule would define anything or would include an item for anything out of the ordinary such as on the Cape Breton Railway we had a classification for gypsum. On other roads we would have a special item for shale rock, rock debris, and such material as that.

Q. Where it occurred in sufficient quantities to justify a special price?—A. Yes.

Q. Can you, Mr. Grant, give us the history of this new item of assembled rock, and how it became a portion of the Transcontinental specifications, if it ever did?

Mr. Staunton: It is not a portion of the specification, it is an interpretation.

By Mr. Gutelius:

Q. Can you tell us how it became an official interpretation?—A. It came about in this way. On October 7, 1907, the assistant chief engineer of the Grand Trunk Pacific Railway, Mr. H. A. Woods, wrote a letter to Mr. Lumsden, the commissioners' chief engineer, complaining of over classification in district B, particularly with reference to the work in the neighborhood of La Tuque. A special investigation was held with reference to this complaint on October 25, 1907, by the commissioners' chief engineer, his staff, and the contractor, and Mr. Woods was also present with his inspecting engineer, Mr. John Armstrong. This investigation was held with the view of ascertaining whether or not the Transcontinental engineers were classifying too high, and whether or not Mr. Woods' complaint was well founded. The chief engineer and the others walked over some six miles of the line that was complained of by Mr. Woods. Nothing definite was agreed on on the ground so far as I know. Mr. Lumsden returned to Ottawa, and after considering the matter issued his interpretation of the specifications together with an explanatory letter and an explanatory diagram in which was included among many others items "assembled rock."

By the Chairman:

Q. Items covering assembled rock?—A. Yes.

Q. And declaring it to be solid rock excavation?—A. And instructing the engineers to classify assembled rock as solid rock. That is the history of how assembled rock came to be included in the official classification.

By Mr. Gutelius:

Q. When you became chief engineer, Mr. Grant, did you perpetuate the interpretation of assembled rock as being solid rock, and if so why?—A. When I became chief engineer in July, 1909, the work had been proceeding for some years under Mr. Lumsden's interpretation of these specifications which had been duly approved by the commission, and in discussing this with the commission it was decided that the same interpretation would be adhered to as had been officially approved of in the past.

By the Chairman:

Q. You produce a letter dated January 4, 1908, written by P. E. Ryan, secretary of the commission, to Mr. Lumsden, in which he says:—"I beg to advise you that your letter of the 9th instant giving your interpretation of clauses 33, 34, 35 and 36 of the specifications for construction, modified so as to conform with the opinion expressed by the Deputy Minister of Justice, was considered by the board on the 10th instant and approved."—A. Yes.

Q. Has that approval ever been recalled?—A. It has not. That interpretation is still acted upon.

Q. A moment or two ago you said that at a conference between you and the commissioners it was decided to adhere to the Lumsden interpretation?—A. Yes.

Q. When was that conference?—A. It was in this way: Immediately on being appointed chief engineer I discovered that Mr. Lumsden had refused to sign the May and June estimates that were then due for payment. I also refused to sign those estimates until I had gone out on the line to see what I was signing for, and as I understood Mr. Lumsden had refused to recognize assembled rock when he went over the line with the chief engineer of the Grand Trunk Pacific Railway Company. I asked the commissioners whether or not I would have to recognize it and I was then told I would have to adhere to Mr. Lumsden's interpretation of the specifications which had been approved by the board.

Q. Mr. Lumsden contended, did he not, that the engineers were not classifying under the head of "assembled rock" material which he intended to be covered by his definition of assembled rock?—A. That is as I understand it.

Q. Do I understand from you that the commission instructed you that you were to follow the interpretation that had been given of assembled rock by the engineers on the work?—A. They instructed me that Mr. Lumsden's interpretation of the specifications and his blue print diagram were in other words the official interpretation of the classification.

Q. But why did Mr. Lumsden want to go back on his own interpretation?—A. Because he contended that there had been a great deal of material classified as assembled rock which in his opinion was not solid rock.

Q. Then, were you to put the same interpretation upon Mr. Lumsden's blue print as he contended should be put upon it; was that your instructions?—A. No, I got no definite instruction as to what was "assembled rock."

By Mr. Gutelius:

Q. Your instructions were to strictly adhere to the blue print and the printed instructions that went with it?—A. Yes.

By the Chairman:

Q. Was the Board aware at the time you had this conference with them then, just after your appointment as chief engineer, that the engineers on the work had given a different interpretation to Mr. Lumsden's blue print than that which he contended should have been given to it?—A. The Board were well aware that Mr. Lumsden did not agree with the interpretation put on his blue print by the engineers.

Q. Then the engineers in the field and the chief engineer in the office differed as to the interpretation to be put on the blue print?—A. They did.

Q. To the knowledge of the Commission?—A. Yes.

Q. Did the Commission know that a classification was being made by the engineers which did not meet with the approval of the chief engineer.—A. They did.

Q. Did the Board agree with Mr. Lumsden or with the engineers in the field?—A. That I cannot say.

Q. Did the Board know that Mr. Lumsden refused to sign estimates which were made up on the interpretation of the engineers in the field.—A. They did.

Q. Did the Board know what the difference between them was?—A. They must have known, because Mr. Lumsden had been home for some time in Ottawa before he resigned.

Q. Was he not at La Tuque with the Commission when they went down to examine that in October?—A. I believe he was.

Q. Lumsden was at La Tuque?—A. He was.

Q. And the Board was there?—A. They were.

Q. Did he point out at that time where the engineers were going wrong?—A. He wrote them on his return from La Tuque.

Q. Pointing out where in his opinion they were going wrong?—A. Not definitely.

Q. Did he write them at any time pointing out where he differed from the engineers?—A. No, he did not.

Q. Did he bring it to their knowledge?—A. He brought it to their knowledge in a vague way in a letter written shortly after his visit to La Tuque in October, 1907; that letter can be found on Mr. Ryan's file.

Q. In his letter of October 30, 1907, to the Commissioners, Mr. Lumsden says that he does not agree with the interpretation put upon the specifications by Mr. Doucet and the other engineers in the field—that is before he made up the blue print, is it not?—A. Yes.

Q. After he made his interpretation which was accompanied by the blue print on the 9th of January, 1908, of the classification clauses in the contract, he claimed that the engineers did not follow his instructions correctly, did he not?—A. He did.

Q. He claimed that the engineers were classifying as assembled rock, material which was not rock?—A. Yes.

Q. And he said that he intended by the assembled rock clause to only include——A. Not to my knowledge.

Q. He claimed that in his evidence before the House of Commons did he not?—A. So far as I know Mr. Lumsden on his tour of arbitration classified nothing as assembled rock except ledge rock and boulders over a yard.

Q. But he contended, did he not, that nothing should be classified as assembled rock, excepting rock, did he not?—A. He did.

Q. Now then, when you were before the Commission to receive your instructions you knew that he had made that contention, that that was the proper interpretation of assembled rock, did you not?—A. I did not. I never knew what Mr. Lusmden's contention was until I heard his evidence a year afterwards at the investigation.

Q. Then that explains why it is that when you received the instructions from the Commission to follow the Lumsden interpretation you allowed material to be classified under the head of assembled rock just as it had been done before you were appointed?—A. That is why.

By Mr. Gutelius:

Q. And you were further left to your own resources in the matter of interpreting the Lumsden interpretation?—A. Quite so.

By the Chairman:

Q. There was a great controversy for years, was there not, over what was solid rock in the specifications?—A. Yes.

Q. The engineers before they visited La Tuque had been classifying as solid rock, under the head of "rock in masses," what they stated was a mixture of cemented material and boulders of nearly every size?—A. Yes.

Q. And, as you have said, this was objected to by Mr. Woods?—A. Yes.

Q. Then it appears that the contractors fortified themselves with the opinion of several leading counsel in Ontario and Quebec?—A. Yes.

Q. And these gentlemen gave opinions to their clients in which they stated that in their opinion the contractors were entitled to have the solid rock classification for this material?—A. They did.

Q. Now, that was a very important item, was it not?—A. The most important on the road.

Q. And it was one which it was desirable that the Commission should obtain the best advice possible upon?—A. It certainly was.

Q. And the Commission was furnished, I believe, with copies of the opinions got by the contractors from their own lawyers?—A. Yes.

Q. Did the Commission on their part then obtain an opinion from their own counsel as to the proper interpretation of these specifications?—A. They did not; at least not that I ever heard of.

Q. Did they accept the opinions of the contractors' counsel?—A. I do not know whether they did or not.

Q. Mr. Lumsden drew up this interpretation, and in his first draft he stated that the boulders, in order to come under the head of assembled rock, should measure a cubic foot and upwards, did he not?—A. He did.

Q. I have read the letter of the Deputy Minister of Justice and it does not appear to me that he has given it as his opinion that it was proper to classify assembled rock under the solid rock heading; did you understand that he had given an opinion to that effect; he uses the word "if"?—A. I do not know that I ever studied his letter.

Q. Here is his letter. The letter here dated Ottawa, 6th January, 1908, from Mr. Newcombe, Deputy Minister of Justice, to the secretary of the Transcontinental Railway Commission. I find it says:

"Referring to your letter of 20th ultimo with which you submit the correspondence with regard to the classification of excavated material and the interpretation of clauses 33, 34, 35 and 36 of the general specifications for construction of the Eastern Division of the National Transcontinental Railway, I have the honor to state that upon consideration of the papers submitted I see no reason to differ from the classification stated by the chief engineer in his letter to the commissioners of 16th ultimo except as to the statement that 'rock assembled (the individual pieces of such assembled rock exceeding *one cubic foot* in size) .....such as in the judgment of the engineer may be best removed by blasting,' is to be classified as solid rock excavation under clause 34. I do not understand upon what principle the chief engineer limits the size to pieces exceeding one cubic foot. The specifications speak of rock found in ledge or masses of more than *one cubic yard* which in the judgment of the engineer may be best removed by blasting. If 'rock assembled' may be regarded as a mass of rock, and if it may be best removed by blasting, I do not see why under the specification it is material whether the individual pieces exceed or are less than one cubic foot in size, and if 'rock assembled' is not regarded as a mass, the minimum limit of size which can be classified as solid rock exceeds one cubic yard.

"It seems to me however, that these questions are largely engineering questions, the solution of which depends principally upon the judgment of the engineer and having regard to the terms used in the specifications, I must call your attention also to clause 15 of the Contract which provides that the engineer (that this term to be construed as defined in clause 2 of the contract) shall be the sole judge of work and material, and that his decision on all questions in dispute with regard to work and material shall be final, thus expressly stipulating that such questions as these shall be submitted to the decision of the chief engineer.

"I wish to say that it is very difficult for me to advise *generally* upon the interpretation of these specifications, and a general ruling may not infrequently overlook the peculiar facts or circumstances of an individual case which if stated might lead to an exception or modification. I would prefer to advise upon any special case as it may arise, having all the particulars and circumstances stated.

"Papers returned herewith.

"I have the honour to be,

"Sir,

"Your obedient servant,

E. L. NEWCOMBE,

"Deputy Minister of Justice."

You will notice that he does not say in that letter that under any conditions boulders or stones of less than a yard should be classified as solid rock excavation?—A. I notice that he uses the word "if".

Q. So that, so far as you know, although the Commission adopted this assembled rock interpretation, and although the Commission knew that the contractors had been fortifying themselves by the opinion of counsel, the Commission never got a legal interpretation of these specifications for themselves?—A. Not to my knowledge.

Q. Don't you think they ought to have done so?—A. I think it would have been a wise precaution.

Q. Did you ever suggest it to them?—A. No, I was not in a position in these days to do so.

Q. When you became chief engineer did you ever ask them for a legal interpretation of that specification?—A. I did not.

Q. You acted on the instructions the Commission gave you?—A. Yes.

By Mr. Gutelius:

Q. In your letter of December 23rd, 1909, to the district engineers, with reference to the method of keeping records of the various classes of excavation you were particularly careful to have the solid rock returned under Mr. Lumsden's diagram known as assembled rock, kept separate, apparently with the object of keeping the quantity as low as possible, am I right in that?—A. Yes, you will see also that my instructions are that the division and district engineers are to be held responsible for any returns made under assembled rock, so that in case of a dispute later on they would not be in a position to blame the resident engineer.

Q. You expected disputes in the matter of assembled rock?—A. I expected that as in the past returns under this heading would be disputed by the Grand Trunk inspecting engineers or by myself.

Q. If you had been chief engineer at the time Lumsden wrote this interpretation would you have made the "assembled rock" item?—A. I never would have written any official interpretation of the specifications as I considered that was absolutely unnecessary.

Q. That is, in general?—A. I do not think that the specifications require any written interpretation. They are perfectly plain and to me they are all right.

Q. Then, the result of Mr. Lumsden's interpretation would not make the specifications any plainer than they were originally printed?—A. Mr. Lumsden's interpretation had a contrary effect. It mixed up the whole business and resulted in a great deal of material being returned as assembled rock which is not solid rock.

Q. And should not be paid for as solid rock?—A. And should not be paid for as solid rock.

Q. In our recent inspection, Mr. Grant, I think I noticed material classified as assembled rock, and shown on the estimate as solid rock, which was composed of loose rock material, with a few large boulders, was I right in that?—A. You were right.

Q. Now, describe the material which we found on District "B" which has been classified by the engineers as assembled rock, using as far as you can the terms of the original specification?—A. On my recent trip over the line I find cuttings classified as assembled rock in which the material consisted of sandy loam mixed into which there were boulders of various sizes, rock fragments, and portions of shale rock, which, if "assembled rock" had not been allowed these cuttings would have been returned as follows: All boulders over a cubic yard would have been classified as solid rock; boulders over a cubic foot and up to a cubic yard would have been classified as loose rock, and the balance of the material would either have been classified as loose rock or common excavation according to its hardness.

Q. Do you know whether your records would enable you to determine the quantity of boulders in excess of a cubic yard or more?—A. I do not know. For a long time boulder measurements were not got, that is previous to my being chief engineer, since which time boulder measurements were kept. But, on questioning the engineers with reference to these boulder measurements they told me that they were not satisfactory in many cases or they had not confidence in the men who were measuring the boulders.

Q. Did you not select these boulder measurers?—A. No.

Q. Who selected the men who measured the boulders in these cuts?—A. All below the rank of resident engineers were nominated by the different commissioners, each man for his own district.

Q. Can you give the names of the commissioners and the districts over which they had jurisdiction in this respect?—A. Commissioner McIsaac had jurisdiction over District "A" which is the Province of New Brunswick; The Hon. Mr. Parent, Chairman, had jurisdiction over the Province of Quebec, or District "B": Mr. Calvert had jurisdiction over Districts "E" and "D" in the Province of Ontario, and Mr. C. A. Young had jurisdiction over District "F" in Manitoba and Ontario.

By the Chairman:

Q. Each one of them controlled the patronage in his own district?—A. Yes.

By Mr. Gutelius:

Q. Do I understand that the employees known as boulder measurers were appointed without the approval of the chief engineer?—A. Yes.

Q. Were these men usually experienced in classification of railway excavation?—A. Not that I know of.

Q. You understand that they were ordinary——A. Fellows looking for a job.

Q. And probably would have been unable to figure the contents of a boulder if it were a sphere?—A. Yes.

Q. Are they the kind of men who would know anything about geometry?—A. No, they would not.

Q. Is a knowledge of geometry necessary for measuring rock masses of this kind?—A. No, I do not think so, but if a fellow was willing and reasonably clever he could be made a good boulder measurer in a short time by the resident engineer.

Q. By the resident engineer teaching him?—A. Teaching him, provided that he was willing to do the work as directed.

Q. What was the deficiency of these men generally that caused the engineers to state to you that they had not confidence in them?—A. The trouble in some cases was that the men so appointed did not look upon the engineers as their bosses, and were not very particular whether they obeyed instructions or not.

By the Chairman:

Q. Who had power to dismiss them?—A. Claiming that as they were appointed by the Commissioners they could not be dismissed except by direction of the Commissioners.

Q. The measurement of boulders is a very important item in the classification?—A. Yes, sir.

Q. There are boulders to be found in nearly every part of the country traversed by the railway excepting Districts "C" and "D"?—A. Yes.

Q. Do you agree with us that it is very important that not only reliable but competent men should have been chosen to make these measurements?—A. Certainly.

Q. Instead of picking up all over the country men who were, as you say, just looking for a job?—A. Yes.

Q. Had these boulder measurers it in their power to affect the classification very much?—A. They had.

Q. Tell me how they could do it?—A. They could do it by being careless and not visiting the cuts at frequent intervals to see what boulders were being moved and measuring each boulder to see that it was a yard or over, and also seeing that they did not measure the same boulder more than once, by seeing that the boulders they had measured were removed and put in the dump and not left to be remeasured when the fellow came back on another trip.

By Mr. Gutelius:

Q. What check do the resident or higher engineers have of the accuracy of the reports of boulder measurers?—A. None, except what notes they may take when going through the cutting themselves and investigating at frequent intervals the boulder measurers' records to see that they correspond with their own notes.

By the Chairman:

Q. Have you known of cases where there have been any improper measurements—did the division engineers instance to you when they were complaining, any case where the measurements had been unreliabel?—A. Yes.

Q. Can you give us some of them?—A. Some of the division engineers on District "B" when questioned by me as to why they did not have boulder measurers in certain cuttings, explained that the boulder measurers had not proved satisfactory to them, that they got more reliable returns by frequently visiting the cuts themselves and doing any boulder measuring themselves than trusting to Tom, Dick or Harry, that was sent to them as a boulder measurer.

Q. Then it must necessarily follow, if the resident engineers had to do this work themselves, that their returns might be more or less inaccurate?—A. Yes.

Q. Because they could not be on the ground all the time to measure the boulders and they had to estimate the boulders in the various cuttings in their residencies?—A. Yes.

Q. Now, if the commission had appointed efficient and reliable men to do this work it might have affected the classification very materially, might it not? A. It would have affected it. I do not know to what extent but at all events we would have had reliable classification.

Q. You would have had reliable classification?—A. We would have had reliable classification instead of percentages.

Q. In the absence of reliable boulder measurers how do the resident engineers make their classification?—A. The engineers would take notes of the amount of boulders on each time they visited the cut and estimate for the material excavated that they did not see.

By Mr. Gutelius:

Q. Based on the information gathered in their notes?—A. Yes.

By the Chairman:

Q. How long were the boulder measurers on these various districts?—A. Boulder measurers have been on more or less for the last three years; some division engineers would have them and others would not.

By Mr. Gutelius:

Q. Were the boulder measurers supplied whenever the division engineer asked for them?—A. Willingly.

Q. Were they ever supplied to your knowledge where the division engineer did not want them?—A. That I cannot say, because I never knew anything about these appointments. They were all arranged through the district engineer and the commissioners.

Q. Considerable difficulty was experienced in securing uniform classification for clay in Districts "C" and "D"?—A. Yes.

Q. By reference to paragraph 35 in the classification the description of loose rock provides for material that in the judgment of the engineers cannot be ploughed with a 10-inch grading plough behind a team of six good horses properly handled—on your inspection did you find the field engineers classifying material as loose rock which could be ploughed and if so will you give us a description?—A. Yes, I found clay classified as loose rock that was ploughed with a 2 and 4 horse and put into the bank with wheel and slush scraper.

Q. And that was classified as what?—A. Classified from 40 to 80 per cent loose rock.

Q. What did you do as chief engineer?—A. When I was on my arbitration trip with the chief engineer of the Grand Trunk Pacific Railway and Mr. Schreiber this classification was all reduced to what the arbitrators considered would be fair under the specifications. I may say that the reason the engineers gave for so classifying this material was that it was hard and in their opinion could not be ploughed, in the sense that it was to the advantage of the contractor to plough it. There was no doubt that a considerable amount of this material classified as loose rock by the engineers could have been ploughed with six horses properly handled as specified, in which case it was common excavation.

Q. You also reduced from loose rock to common excavation a quantity of soft clay which the engineers had called loose rock?—A. Yes, a considerable amount of soft clay in District "D" was reduced from loose rock to common excavation. This soft clay had been classified by the engineers as loose rock because in their opinion it could not be ploughed from the fact that horses could not walk in it without becoming mired.

Q. Did you find any frost classification?—A. Yes.

Q. Tell about that?—A. On both Districts "F" and "D" a considerable amount of frozen clay was classified as loose rock. On having been appointed as chief engineer I called the commissioners' attention to this and told them that in my opinion this could not be allowed and that I intended to have all frozen clay which had been classified as loose rock or solid rock, removed from the estimates.

Q. And that was done?—A. And that was done; and I would like to explain that when the engineers classified clay as loose rock or solid rock in the specifications they did so openly.

Q. Openly?—A. Yes. In the case of the frozen material classified on District "F" it was done under the direction of the chief engineer Mr. Lumsden, and this had been agreed on at a meeting held in the district engineer's office in Kenora where the chief engineer, the divisional engineers and Commissioner Young were present. With reference to the classification for frozen material on District "D" this was done by the district engineer owing to the pressure on him from Ottawa to have the work rushed during the winter season.

By the Chairman:

Q. What do you mean by the pressure from Ottawa: do you mean the pressure of the commissioners?—A. Owing to the pressure from headquarters, that is by the commission and chief engineer to have the work rushed during the winter season.

By Mr. Gutelius:

Q. Did you reduce the classification in these items which you have just described?—A. I did, and I notified the commission that unless I had written instructions from them no classification would be allowed for frost.

Q. Why did you not concur with the engineers who classified soft clay as loose rock?—A. Because in my opinion the specifications for loose rock are controlled by the hardness of the material and not the softness of it. These specifications are referring to the hard materials, that is, material must be hard and not soft to be called loose rock.

Q. What do you say to the reason given for classifying loose material on a steep hill side because it could not be ploughed in the practical sense of the term?—A. I look upon that as sheer nonsense.

Q. Then, in your opinion, the plough feature of the specification is a test for hardness?—A. Yes.

Q. And the fact that a six horse team is named in the specification goes towards showing that it was prescribed as a test rather than as a practical method of ploughing?—A. I am of opinion that when six horses were specified it was done with a view of proving that the material must be very hard before it could be called loose rock and that this was meant as a test more than a practical method of removing material.

The witness was not further examined.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION: EVIDENCE TAKEN IN TRANSCONTINENTAL OFFICES, OTTAWA, NOVEMBER 21st, 1912.)

HUGH D. LUMSDEN, sworn:

Examined by Mr. Gutelius:

Q. You were chief engineer of the Transcontinental Railway between what dates?—A. From 1904 to July, 1909.

Q. Who prepared the original specifications for the construction of this railway?—A. Well, there were several connected with it: Mr. Butler, Mr. Woods and myself.

Q. They made the original drafts, and you made some corrections?—A. Yes, Mr. Woods and Mr. Butler, I think, made the original draft.

Q. Do you remember of having changed the clauses with respect to classification in the original specifications?—A. I have no recollection, at the present moment, of making any changes.

Q. You did, however, make an interpretation, after a certain number of contracts had been let on the original specifications?—A. Yes.

Q. As shown in the blue print and explained in your letter of January 30th, 1908?—A. Yes.

Q. Before making that interpretation and sending out the blue print, with whom did you confer?—A. With the Commissioners.

Q. How did you happen to take the matter up after that with Mr. Schreiber? Did the Commissioners suggest Mr. Schreiber?—A. Yes, my recollection is they did; they suggested Mr. Schreiber.

Q. And the interpretation which you made was the result of your conference with Mr. Schreiber?—A. Yes.

Q. Who drew the original picture for that item number 5 on the blue print? —A. Mr. Schreiber drew that.

Q. The position you took prior to the issuing of that blue print, and in your subsequent evidence before the House of Commons Investigating Committee, indicates to me that your personal idea of solid rock was and is that to be solid rock it must be a piece of stone about a cubic yard or larger, is it not?—A. A cubic yard or larger, yes.

Q. The issuing, then, of the blue print which showed assembled rock, was intended to be a compromise between your personal ideas and the conditions that you were confronting at that time?—A. Yes, it was.

Q. Am I right in assuming that item number 5, as shown in this interpretation, means that the stones can be smaller than a cubic yard?—A. It did mean that.

Q. Will you tell us how you happened to be persuaded to make this compromise classification?—A. While at La Tuque with the Commissioners on their car, they brought up the subject of solid rock, the interpretation of the solid rock, and I then stated that my interpretation of it was that it meant rock in ledges, or boulders over a cubic yard, or masses of detached rock over a cubic yard. They all disagreed with me; that is, the Commissioners and the contractors; and the only person who sided with me on that occasion was Mr. Woods, assistant chief engineer of the Grand Trunk Pacific. Then, after returning here, opinions were handed me by, I think, the Chairman—I cannot be positive who handed me these opinions, of different K.C.'s on the interpretation of the specification.

Q. Those were the letters from Messrs. Shepley, Lafleur——A. Yes, there were a number of them.

Q. Ritchie, Lacoste and others?—A. I do not remember the names of all of them: I should think there were four or five.

By the Chairman:

Q. What did the Commissioners contend at La Tuque was the proper interpretation in that conversation?—A. That it meant masses of other material than rock.

By Mr. Gutelius:

Q. The Commissioners argued with you at La Tuque that solid rock meant material composed of rock fragments, earth and clay in the interstices?—A. That it meant masses of other material than rock, other than what I knew as rock.

By the Chairman:

Q. What description of material?—A. Clay or the hardpan, or anything that was in a mass that was hard, I presume. I do not think they ever went into any detail of what the description would be.

By Mr. Gutelius:

Q. They really wanted you to call the material in that cutting at La Tuque solid rock?—A. When you say at La Tuque, it was not at La Tuque; it was in the neighbourhood of La Tuque; it was not really at La Tuque, because the cutting at La Tuque was sand, but it was south of La Tuque a little bit where this discussion took place. It was on the track of the Quebec & Lake St. John road before it comes into La Tuque, and we had been over some of the work in that neighbourhood.

Q. Let us try to describe the material in the cutting where this discussion actually occurred; it contained some occasional boulders over a cubic yard?—A. Probably ten per cent or less; I cannot begin to go into percentages.

Q. Would you say between ten and fifteen per cent of boulders over a cubic yard?—A. There was a lot of boulders, but I could not say the percentage.

Q. There was a lot of small stone between these boulders?—A. Yes. My recollection of it is that there were masses, a great many cubic yards in some and then down to small stones.

Q. And some clay?—A. Yes.

Q. And sand?—A. Not much sand, principally clay and boulders and masses of rock; they were not really boulders; they were more like detached pieces of rock than boulders; square ends.

Q. They had corners on them?—A. Yes.

Q. These individual pieces could have been removed from a vertical face with a pick and shovel, provided they were smaller than half a yard?—A. I believe they could.

Q. That was your opinion?—A. I do not remember all those particulars, but i believe they could.

Q. Returning to Ottawa, you were handed by one of the Commissioners, presumably the Chairman——A. I think so; they handed me, or sent them in to me.

Q. The opinions of many eminent lawyers which were addressed to the contractors?—A. They were. My recollection is they were all addressed to the contractors.

Q. Did they give you any opinions that were addressed to the Commissioners, or yourself, from other lawyers?—A. After a time I had some communication with Mr. Newcombe in connection with it.

Q. But not from any outside legal talent?—A. No.

By the Chairman:

Q. You submitted this interpretation to Mr. Newcombe?—A. Yes.

Q. You got no opinions from anybody, but you did, after the interpretation was made, submit it to Mr. Newcombe, the deputy minister?—A. Yes.

By Mr. Gutelius:

Q. Can you tell us in detail how you were advised to check this matter up with Mr. Schreiber by the Commissioners?—A. I cannot give you any detail about it. My recollection is that Mr. Parent suggested I should go up and see Mr. Schreiber and talk it over with him. That is my recollection of it; I do not remember particulars at all.

By the Chairman:

Q. Did you see Mr. Schreiber before you drafted your interpretation?—A. Yes.

Q. And then the blue print and the attached letter are the result of your joint efforts?—A. Mr. Schreiber actually drew the original—I won't say the original of this, because I think we made a new tracing of it.

Q. At any rate, the whole diagram, if I may so describe it, was the work of Mr. Schreiber?—A. The actual diagram was the work of Mr. Schreiber; I rather think the shale rock might not have been, but I am not positive: I think it is number 6; I am not sure that that was on Mr. Schreiber's original.

Q. Did you tell Mr. Schreiber that the Commissioners contended for the inclusion of assembled rock in the solid rock classification?—A. I cannot say that I did. I explained to Mr. Schreiber the whole situation. I told him about the meeting at La Tuque—at least, I am under the impression that I did. I would not like to swear I did, for the simple reason that I do not recollect the conversation, but I am pretty well satisfied I did.

By Mr. Gutelius:

Q. You made him familiar with the situation as it was at that time?—A. That is my recollection of it.

Q. Then did Mr. Schreiber have any personal view as to how that clause should be interpreted, or did he only endeavour to put the views of the Commission?—A. I won't say he put the views of the Commission; I did not see him with the Commissioners.

Q. But I mean the views of the Commission as explained to you?—A. I cannot say that.

Q. Was that his own——A. This was his own sketching. I know that.

Q. You do not recollect what his own opinion was as to how that was to be interpreted?—A. No, I cannot say that I do, but that is what he drew up.

Q. Was this—as was stated in what was called the Lumsden investigation—was this assembled rock classification being actually carried out on the Transcontinental before the blue print came on?—A. Oh, I do not think so; I do not know. I think there had been a lot of it classified on some sections, but not on this, certainly not.

Q. But in the same way?—A. I think there had been a lot of stuff classified as rock which I did not consider rock.

Q. What brought up the controversy, or conversation, or argument at La Tuque?—A. My going over the cuttings, and seeing material that I did not consider rock being classified as rock.

Q. Then you actually pointed out to the Commission material being classified as solid rock that, in your judgment, should not have been so classified?—A. Yes.

Q. And you wished that to be reclassified, did you not?—A. Well, I thought it should have been.

Q. That was what brought up the controversy between you and the Commission?—A. To the best of my recollection.

Q. And the Commission, as I understand you, agreed that the classification should stand as it was or at least argued that it should stand as it was, and you disagreed with them?—A. Yes.

Q. Did you make your personal views clear to Mr. Schreiber when he and you were discussing this interpretation?—A. I believe I did, but I do not recollect the conversations that took place at all. I saw Mr. Schreiber half a dozen times backwards and forwards.

By the Chairman:

Q. You returned from La Tuque, and Mr. Parent either sent to you, or handed to you, the opinions of several counsel given to the contractors?—A. Yes.

Q. You read those opinions?—A. Yes.

Q. Did they convince you that you were wrong —A. I cannot say they did convince me I was wrong.

Q. Or did they weaken your conviction?—A. I thought that, all coinciding, there must be something in it, though I could not see it.

Q. Did you so express yourself to Mr. Parent?—A. I cannot recollect distinctly.

Q. You must have, because he then told you to go and see Mr. Schreiber? —A. Yes. I felt doubtful whether there might not be something in their contention.

Q. Then you naturally would have told the whole case to Schreiber?—A. I presume I did; I believe I did.

Q. But at this length of time you cannot positively recall it?—A. I am satisfied I did, but I do not remember the occasion of doing it; I would not like to be positive.

By Mr. Gutelius:

Q. Your relations with Mr. Schreiber have always been most kindly?—A. Yes.

Q. And in a discussion of that character you would give him the benefit of all your personal ideas?—A. Oh, I think so.

By the Chairman:

Q. I suppose you appreciated, did you not, that if this assembled rock interpretation was given these specifications, it would largely increase the cost of grading this road?—A. I believe it would.

Q. From your knowledge of the road and what you saw, it would cover a great mass of material that would otherwise go in as loose or common, would it not?—A. Yes.

By Mr. Gutelius:

Q. We find that in distinguishing between the common excavation and loose rock that the plough-test clause was interpreted to mean a method of removing the material, rather than a test of hardness. Did you understand that the six-horse team clause was a test of hardness?—A. I did—a test of hardness.

Q. Referring to your interpretation in that blue print, did you show this to the Commissioners before sending it out?—A. Oh, yes, sir.

Q. Was it what they wanted?—A. I do not remember the details of the conversation when I showed it to them, but I am satisfied I showed it to them and they approved of it.

Q. So that the result of the meeting at La Tuque, from the Commissioners' standpoint, was that they had their way?—A. Well, I cannot say what their standpoint was, except that they would not agree with me in the interpretation I made at La Tuque. They never themselves, that I remember, made any attempt at a classification of their own, but they simply would not agree with me that that solid rock meant only rock a yard or over.

Q. You are familiar with the little book of instructions, a reprint of which was issued over your signature, dated January, 1907?—A. I cannot say that I am very familiar with it now.

Q. You know that there was such a book?—A. Yes.

Q. When you came on the work you found a book of this character had already been written by Mr. Butler?—A. I think Mr. Butler wrote it, to the best of my recollection. I am not positive about that.

Q. You will notice by paragraph 26 of the instructions, the curvature is limited to six degrees?—A. Yes.

Q. If a large amount of money could have been saved by the introduction of an eight-degree curve, and that matter had been brought to your attention, would you have allowed the use of an eight-degree curve?—A. If the Commissioners approved of it.

Q. You would have taken it up with the Commissioners?—A. Yes.

Q. But personally there is a point in economy in grading that you would have recommended using an eight-degree curve?—A. I think very possibly I would. There were no cases came up where any recommendation was made. There is no doubt these instructions were issued with the idea that the engineers in the field should not use more than six-degree curves.

Q. And the other instructions contained in the same paragraph apply with equal force?—A. I believe that is the same.

Q. In the matter of the pusher grade ascending westward from the St. Francis River, the ruling westbound grade is six-tenths?—A. It was to be, yes.

Q. The pusher grade to hte west of the St. Francis River was built on a one-point-one grade?—A. I believe so.

Q. If it had been built on a steeper grade, it would have reduced the filling across the valley next adjoining the bridge, would it not?—A. Yes, by increasing the grade you would have reduced the amount of the work.

Q. Did you pass upon the rate of grade on that hill?—A. I remember having a profile from Mr. Doucet of that grade.

Q. Did Mr. Doucet give you any comparisons between the one-point-one, as finally approved, and a steeper grade?—A. I cannot recollect that he did. I cannot remember that he did.

Q. You would probably remember if he did?—A. I am not sure. I do not recollect. He might have and might not.

By the Chairman:

Q. You know that there is a large amount of overbreak allowed to the contractors on this line?—A. Yes.

Q. Overbreak is not usually allowable at all?—A. We used not to allow it.

Q. But can you conceive of any conditions which could arise on this line which would justify the allowance of overbreak or where would you allow it, if you allowed it at all?—A. If I could get out of it, I would not allow it at all.

Q. In what case would you be justified in allowing it?—A. When the material was required to make up embankments where cheaper material could not be got.

Q. Then if you had to allow overbreak in such cases as you indicate, according to this specification that overbreak is to be classified after it is shot, and as it lies in the cut: that is right, is it not?—A. Yes.

Q. So that in shooting this rock would you expect that the pieces would be all a yard or larger?—A. No.

Q. That is an impossible condition to arise?—A. Yes.

Q. Did you ever know of overbreak being in a cut all of a greater size than a cubic yard?—A. I cannot answer that. I can say that I have seen overbreak where it was all over a cubic yard, where it was the whole hill side of a cut.

Q. It slipped off?—A. Yes.

Q. A special case, but generally speaking, the rock, when it is exploded by the shots, comes down in large and small pieces, some over and some under a cubic yard?—A. Yes. As a rule the small pieces are near where the charges are, and the big pieces come where the overbreak is, as a rule.

Q. So that you would expect part of that overbreak would be classed as solid and part as loose rock, following the rule laid down in this specification?—A. Yes.

Q. Do you think there was a lot more overbreak allowed on this railway than should have been allowed?—A. I think so, I think specially in the case where it was deliberately wasted, blown over the sides and wasted at the top, and borrowed material at the ends of the cut to make it up.

Q. You saw that yourself?—A. Yes, I cannot give the place now.

Q. What district was that?—A. That was on the west.
Q. District F, McArthur's contract?—A. Yes.

By Mr. Gutelius:

Q. Would you care to give us an idea as to what would be a reasonable percentage to allow in the matter of overbreak?—A. Oh, I could not give you a percentage. My own idea is that I should want to have nothing to do with overbreak. I had nothing to do with overbreak except in the last ten years. The Commission declined to pay for anything, unless it was a straight case of a slide.

By the Chairman:

Q. That is what the specifications provide for?—A. That was my intention originally.
Q. Clause 38: "Materials in slips, slides and subsidences, extending beyond slopes in cuttings will not be paid for, unless, in the opinion of the engineer, such occurrences were beyond the control of the contractor and not preventible by the use of care and diligence"?—A. Yes.
Q. Do you take that to be overbreak?—A. That refers to what would be really unavoidable overbreak, which, in case of taking off a toe of stratified rock, you take out the toe and the whole thing comes out. That is called legitimate overbreak.
Q. Is it not material that slides into a cut and not material that is thrown out? It is material that falls in, and not material that goes out?—A. Yes, that is what it meant—the material that falls in and not what is thrown out.
(Adjourned for 1½ hours).

(After adjournment).

By Mr. Gutelius:

Q. On September 13th, 1905, you wrote to Mr. Hoar, then engineer in charge of Quebec Bridge connections, as follows:—"In reply to yours of the 11th instant, re providing for double track from Quebec Bridge westerly to near Cap Rouge Viaduct, you had better provide for such, using 29 feet for width of top of embankment" and so forth?—A. Yes.
Q. How did you happen to authorize the construction of double track between these two points?—A. My recollection of it is that the Canadian Northern were to join that track a little east of Cap Rouge Viaduct, and it was done with the idea of accommodating them as well as the Transcontinental; that is my recollection of it.
Q. Do you remember of any contract or agreement made with the Canadian Northern?—A. I do not know of any; I do not remember any agreement.
Q. You know that the Act provides for a single track railway —A. Yes.
Q. And that it would require some special arrangement to build double track?—A. Well, if it was for any distance, I should think it would; that is three miles, is it not? With a yard as they proposed to have it at St. Foye, by the time you come to the end of the yard tracks, there is not very much of a double track.
Q. Do you think you authorized that on account of a prospective deal with the Canadian Northern? —A. Whatever I did, I did it after consulting the Commission, I did not do it off my own bat.

Q. So that you are satisfied you did it under the authority of the Board?—A. I am satisfied the Board was aware of it, and I cannot remember now whether it was not done through their instructions. I cannot recollect the instructions, but it was done, at any rate, with their knowledge.

Q. Reading the correspondence might give you some idea?—A. That is my recollection of it, just as I say; that I understood that the Canadian Northern were to utilize that line to get across the Quebec Bridge.

Q. And you would not have authorized the construction of double track off your own bat?—A. I do not think so. I am satisfied I would not do it, except so far as the siding was concerned, and have it run up to the limits of the St. Foye yard.

Q. But this being only three miles, you are quite satisfied this order had the concurrence of the Commissioners?—A. No.

Q. What was your idea of the proper method to enter Winnipeg?—A. I always advocated that we should go in along with the Canadian Northern, crossing the C.P.R. alongside of that, practically making one signalman cover the three lines south of the C.P.R.. St. Boniface yards.

Q. How did the location for the shops, which occurred under your jurisdiction, come about? Who suggested that location for shops?—A. I do not know who suggested it.

By the Chairman:

Q. They were located in your time, were they?—A. Yes.

Q. Did you personally have anything to do with the location of them?—A. Not as far as getting the land is concerned. They had an offer of a large block of land there and they took it.

Q. Did you know they had to bring water all the way from Winnipeg, and the sewage all the way back?—A. At that time we did not expect to have to bring the water from Winnipeg. They had a flowing well right on that property, but the water turned out so hard it was no good for engine purposes, and they had to take it from Winnipeg.

Q. Try and give us something as definite as you can about the suggestion for that location?—A. I cannot. I simply do not remember who suggested it, or whether they had options; there was a lot of land they had in view.

Q. Did you suggest it?—A. I never suggested it.

Q. The correspondence shows that the first letter written about that location of the shops was written by you?—A. Yes.

Q. That is the reason I want you to try and recollect?—A. I did not want to locate it on those long narrow locks—what they call the river locks; they were about 600 feet wide.

Q. At any rate, someone else found that location and submitted it to you?—A. Yes. The yard was the thing that was contemplated in the first instance and not the shops. I do not remember whether the shops were talked of at the first start. It was after the thing had been going a while that the question of the shops came up.

Q. Had you known that the shops were going to be located on that property, would it have affected your judgment in the location?—A. I do not think it would at that time. I think it might, if I had known we were going to have so much trouble getting water, but at that time I imagined we were going to get any quantity of water, because there was one splendid flowing well on that property, and I thought when they got one there would be no trouble in getting more, but the water turned out to be very bad.

Q. Were there other locations suggested by the parties buying land besides this one?—A. Yes, there was one I remember; it was somewhere on those long, narrow locks, nearer St. Boniface, but I think they were owned by Mackenzie, not William, but Rod Mackenzie, and I remember something being talked of the shops going there. They were trying to sell that land for shops to the Commission.

Q. And this Transcona location was the only other one in addition that came up?—A. That is the one I recollect now. This other is close to an old road that ran out there, I cannot remember the name. It was the road that ran out about a short distance east of where their first track ran on to the Canadian Northern. I think that branch ran out to a gravel pit. It is the Dundee branch. My recollection is that this land they talked of for a station was in here somewhere.

Q. That is about half way between Winnipeg and the terminal yards?—A. Yes; I do not know the exact position.

Q. Who had the purchase of this land in hand?—A. I do not know the man's name. Do you mean actually doing the negotiating up there?

Q. Yes, which of the Commissioners?—A. Mr. Young.

Q. Is it the modern railway practice, in the construction of new lines, and reducing the gradients in existing lines, to take advantage of the momentum of moving trains to climb short grades or inclines whose rate of grade is in excess of the rate of grade on the long ruling grade?—A. I believe that is the practice now.

Q. Is the object of introducing these short grades or inclines to reduce the cost of grading the railway?—A. Yes.

Q. And is it a fact that where they are introduced the efficiency of the road is maintained?—A. That I am not prepared to say. I am not an operating man; practically, I am not an operating man.

Q. Is it believed among engineers generally that their efficiency is maintained, without pledging your own opinion on it?—A. I have not had anything to do with operation, and I am not prepared to state.

Q. Is the location of the railway influenced by the introduction of momentum grades?—A. As I personally have not laid out any roads with momentum grades, I am not prepared to answer that question. I quite fancy it would be, but I have not been in the habit of using them. I think, as far as I can recollect, momentum grades have all come in within the last eight or ten years.

Q. Momentum grades have come in, as a matter of fact, have they not, since they have been adopting the lower grades?—A. They have come in, within my knowledge, in the last eight or ten years.

Q. But before eight or ten years ago, it was the practice to have one per cent grades?—A. Yes.

Q. And so, as a result of reducing the grade, they have introduced the momentum grade?—A. I think that is correct.

Q. Would you not say, speaking generally, that if you were instructed, as the engineer of a Transcontinental railway, to use momentum grades, that it would be necessary for you to so advise your staff when they were locating the line?—A. I should think so. If I was going to use momentum grades, I certainly would have to instruct them to that effect.

Q. Because the location of the road would be influenced by that fact, would it not?—A. Yes.

Q. Would you agree with the statement that in the building of this railway, if the policy of introducing momentum grades had been adopted, it would, in all probability, have made a considerable saving in the cost of the grading of the road?—A. I imagine it would make a saving in the cost, but I am not prepared to say that it would add to the efficiency of the road.

Q. Because you say you are not in a position to give an opinion on that?—A. No.

Q. You mentioned a few moments ago that you were not an operating man?—A. No.

Q. There are two classes of engineers, are there not; those whose experience is entirely confined to the constructing of railways?—A. Yes.

Q. And another who have the experience of constructing and operating railways?—A. Yes.

Q. Can you tell me whether or not the Commission consulted, or employed, to advise you and them, any engineer of standing, who had that double experience?—A. I cannot say that they did. I do not know what they call Mr. Butler.

Q. So far as you know, they did not?—A. No.

Q. Do you not think it would have been a very prudent step for them to take to have given you the assistance of a man who had a large experience in operating railways?—A. I do not know; I cannot say that.

Q. On this very question of momentum grades, he might have given you some very valuable information, might he not?—A. He might.

Q. During your time, at all events, there was no operating man?—A. MacPherson was an operating man.

Q. No operating man other than Mr. MacPherson employed on the staff by reason of his having been an operating man?—A. Not that I recollect of.

Q. Did you consult Mr. MacPherson on this question of momentum grades?—A. I am not sure that I did; I believe I talked to Mr. MacPherson about it.

Q. Did the Commission consider the question officially at all?—A. Not that I remember.

By Mr. Gutelius:

Q. In the matter of height of embankment in level prairie country, how high above the surrounding country would you say the base of rails should be, to give reasonable protection against snow?—A. Two and a half to three feet.

Q. So that if a profile staying within four-tenths and six-tenths grades had been laid down, so as to give 2½ to 3 feet above the surrounding country, that would be as efficient a railway as if those embankments were raised higher?—A. I think so, assuming that you are within the gradient limits.

Q. Now, as to wooden bridges; in the early days of construction, we know, from the correspondence, that you advocated the construction of wooden bridges? A. Yes.

Q. You would have built, if that policy had been adopted, wooden trestles over depressions in the roadbed that could not have been filled with material removed from adjoining cuttings, or be filled with common excavation that could have been borrowed within the short haul, would you not?—A. Yes, with the understanding that there would be no price for extra haul.

Q. Would the construction of such trestles have interfered with the efficiency of the railway in the matter of transporting trains—the size of trains?—A. No, I do not think so.

Q. Is the custom of constructing wooden bridges, as we have just described, the usual practice on new railroads in Canada?—A. Yes, in unsettled countries.

Q. It would be reasonable to suppose that these trestles could be filled later on, if it were so desired, for less money than it would cost during original contruction?—A. Yes. We had a bid of 25 cents from the G.T.P., whereas our contract prices for train fills were from 45 to 58. Of course that included the temporary trestles.

Q. In deferring the filling of these trestles, is there any advantage to be gained in the matter of the size of the openings?—A. Yes.

Q. Just explain that, will you?—A. Well, in an unsettled country there are very few know the sizes the streams may get to in the spring, and if they have a good big open trestle across it, they have a number of years for the section men and others passing to get an idea of the volume of that stream, and to avoid putting in a structure that is too big or too small.

Q. The probability is that if this policy had been adopted on the Transcontinental that the size of the structures built in eight or ten years would be more economical than those built now?—A. That would be the natural result.

Q. Would the cost of the railway have been influenced, if that policy had been adopted, on account of the further knowledge that the engineers would have had concerning soft muskegs and foundations for structures?—A. Oh, yes. If the country was cleared for a number of years it would certainly give the soil a chance to dry out and give them a chance to know something about it.

Q. So that many of the slips and slides we have had might have been avoided? —A. Some of them might have been avoided.

Q. Who do you consider is responsible for the policy of not building wooden trestles on this railway?—A. I should say the Commissioners.

Q. The fire risk in connection with trestles on this railway would not have influenced you in abandoning their use?—A. Not in abandoning their use.

Q. How would you meet that danger?—A. By clearing away all inflammable material round the base of the trestles, and clearing the land out a little further for that purpose.

Q. You would have cleared it so that it would be impossible for them to start a fire?—A. I would not say impossible; I would say improbable.

Q. In your discussion with the commissioners, did you make it clear to them as to the large amount of money that might be saved in original construction, if wooden trestles had been used?—A. No, I do not remember any discussions with them on the actual saving that was going to be effected.

Q. Don't you feel that you put up a proper case?—A. I did; I felt so at the time, but, talking now, I do not remember the particulars. Mr. Woods and I were quite in accord in the matter, and wanted to put in timber trestles.

By the Chairman:

Q. Do you think this Commission ever took the question of economy seriously into consideration at all in the construction of this road?—A. There were lots of things I thought could be more economically done.

Q. Did they ever, to your knowledge, seriously consider the question of economy?—A. I do not recollect any glaring cases of it.

By Mr. Gutelius:

Q. The Commission employed the engineers to do this work?—A. Yes.

Q. And not you?—A. No.

By the Chairman:

Q. You had not a free hand to choose your staff?—A. No.

Q. You simply approved the men they suggested?—A. Yes. In the first start, when Mr. Wade was Chairman, I dare say I suggested a number of names; in the first start, of men I happened to know, and latterly I had to suggest men I wanted to get, to the Board. If they had any names they would always send them in to me for approval.

By Mr. Gutelius:

Q. And they did not always get your approval for appointments in really important cases?—A. Yes.

Q. With regard to the wooden bridge proposition, if the wooden bridge policy had been adopted, how much time do you think might have been saved in the construction of this railway?—A. I think considerable time could have been saved.

Q. Two seasons?—A. They could have gained at least one; they might have gained two, but I would not like to say.

Q. In connection with the letting of the contract for District F. to J. D. McArthur, the tenders for this work were advertissed for in the regular way; bids were taken by the commissioners and opened. Were you present when the bids were opened?—A. I think not. The reason I say that is that when the first few contracts were let I certainly was not, because I did not know who the contractors were.

Q. You only had the information by numbers of the tenderers?—A. Yes.

Q. Which would indicate that you were not present when those numbers were allotted?—A. No, I was not present. I did not see the original tenders at that time.

Q. You were given a form on which the unit prices were shown opposite the items, and each of those forms was given a number?—A. Yes.

Q. Now, in the contract for District F., the form that was given to you had a number of blank places?—A. Yes.

Q. Which were filled in with red ink?—A. Yes.

Q. Do you know how these prices happened to be filled in that way?—A. They were filled in by me; to the best of my recollection, I filled them in personally, myself.

Q. This character of work was unusual, in moneying out tenders, was it not, to fill in blank items?—A. Yes, it was unusual; I was not in the habit of doing it.

Q. Did you do this off your own bat?—A. No, I was instructed to do it. I called attention to the fact that one of these tenders had not any prices in for a number of articles they were bound to use a lot of.

Q. Do you remember how that instruction was given to you and by whom?—A. I cannot remember who gave the instructions directly, whether it was the Chairman or Mr. Young, or whether it was before the whole Board; I do not remember the particulars of it.

Q. When you filled the tenders in, did you have any knowledge that it was McArthur's tender you were filling?—A. Not that I am aware of; I may have suspected whose tenders they were, but I had no direct knowledge. I have no recollection of knowing; I did not try to know, in fact.

Q. Did you notice after the bids were moneyed out and comparisons made, that the tender in which you put the red figures was the winning tender, the lowest tender?—A. Oh, I knew afterwards, of course.

Q. Did you not feel a little nervous over fixing up a tender that developed into the winning tender?—A. I cannot say that I remember feeling nervous about it. I was doing it under instructions from the men who were letting the contract, and I did not think very much about it at the time; at least, that is my recollection.

Q. You felt that you were moneying this out under instructions?—A. I was.

Q. And that you were relieved of the responsibility in connection with the work?—A. Yes. My recollection is I put in figures that I was using and had used for making an estimate of what it should cost. My recollection is I put in those same figures moneying that out.

Q. Did you have anything to do with discussing with McArthur whether he would accept these or new figures that you put in?—A. I do not recollect discussing it with McArthur.

Q. You understand it would be necessary for his attention to be called to the fact?—A. Oh, yes, he had to sign the schedule, I presume, when he signed the contract.

Q. And someone should have called his attention to the fact that this schedule was not the one contained in his tender?—A. I presume so; he must have done.

Q. But you do not know about his being advised of it at all?—A. I do not personally know. I do not recollect having had anything to do with it.

Q. Referring to the detail of the tender, we find that in the returns made in your office that under item 10, "Pile delivered, as per engineer's bill" and item 11, "piling driven" that each of the figures quoted were moneyed out without reference to the words shown on McArthur's tender "Driving only"? Did you know McArthur's tender showed "Driving only" on it?—A. I do not see that that "Driving only" would affect it.

Q. Did it not strike you, in looking over these various tenders, that when tender number one showed 35 cents for "Piling delivered" and 65 cents for "Piles driven", and tender number 2 showed 20 cents for "Piles delivered, and 35 cents for "Piling driven", tender number 3, 22 cents for "Piling delivered" and 24 cents for "Piling driven", that when tender number 4, which is McArthur's, showed 25 cents for "Piling delivered" and 15 cents for "Piling driven", with the words "Driving only" attached, that there must have been some misunderstanding between the people who made the tenders?—A. I do not remember noticing anything of the kind.

By the Chairman:

Q. When they moneyed out McArthur's bid on the piles, they moneyed out the 15 cents in a column, and beside that, they moneyed out the 40 cents for the other amount. They did not split other amounts; McArthur split his?—A. They are all split all the way through.

By Mr. Gutelius:

Q. Will you answer my former question; did it not strike you, in looking over these various tenders, that when tender number 1 showed 35 cents for piling delivered and 65 cents for piles driven, and tender number 2 showed 20 cents for piles delivered and 35 cents for piling driven, tender number 3, 22 cents for piling delivered and 24 cents for piling driven, that when tender 4, which is McArthur's showed 25 cents for piling delivered and 15 cents for piling driven, with the words "driving only" attached, that there must have been some misunderstanding between the people who made the tenders?—A. "Driving only" was considered all the way through; that is under item 11 "Piling driven"; that is my recollection of it.

By the Chairman:

Q. That fellow was charging 65 cents for driving those piles?—A. It may be a great deal more than it is worth.

Q. It is not what he intended?—A. It may not be.

By Mr. Gutelius:

Q. In order to show that the question we are discussing was not unknown at that time, I would refer you to your letter January 2nd, 1907, to the commissioners, in which you say, "I also allowed the 20 cents per lineal foot for piles delivered, as well as the 40 cents per foot for piles driven, having found, in making a comparison of the tenders, that they had been so computed, except where specially mentioned otherwise"?—A. I do not remember that.

Q. Don't you mean in that, that this piling driven was this special case referred to in that letter? You are not sure about that?—A. No. This letter evidently refers to a new deal made with the contractors in connection with hauling stuff by train. This letter was written in connection with that deal down in Quebec, in regard to train haul material and temporary trestle.

Q. Were there any other tenders in which the words "Driving only" were used?—A. I do not know; I do not remember it even in that.

Q. To refresh your memory further that the items 10 and 11 were not clearly understood, I would ask you, why did you change the reading of the specifications in the 1909 reprint, to make the items read "Piles delivered" and "Piling driven"?—A. I do not remember why.

Q. This arrangement is clear, is it not?—A. I do not remember. What is the old one?

Q. "Piling delivered will include piling furnished by the contractor at the bridge site, as ordered by the engineer, and will be paid for by the lineal foot, but any lengths in excess of those ordered will not be paid for". "Piling driven will be paid for at the specified rate per lineal foot in the finished structure, which will include all work of any kind in connection therewith"?—A. "But will not include the piles themselves"; that is added.

Q. It has been put in to make it perfectly plain as to what was actually meant, although your interpretation of the old specification and the new one is the same?—A. Yes.

Q. In the matter of letting the contract number 18, from mileage 162.5 to mileage 237.5, District F, the contract was finally awarded to Fauquier Brothers; that is north of Lake Nipigon?—A. Yes.

Q. In making a comparison of the tenders, I notice that tender number 2 shows solid rock $1.75, loose rock 65, common excavation 31?—A. Yes.

Q. Whereas tender number 3, on which the contract was finally given shows solid rock $1.80, loose rock 60, common excavation 38?—A. Yes.

Q. The fact that the contract was given to tender number 3 at $1.80 for solid rock, which is five cents more than tender number 2, and common excavation 38 cents, whereas the other tender showed 31, suggested that probably some other item in these tenders influenced the totals; that was natural, was it not?—A. Yes.

Q. By referring to item 74 (e), removal of moss, I notice there was estimated by the engineers 665,400 cubic yards of moss?—A. Yes.

Q. For which tender number 2 bid 35 cents, tender number 4 bid 32 cents, but tender number 3, which received the contract, bid 12 cents?—A. Yes.

Q. Did you notice those items?—A. I have no recollection of noticing them.

Q. Now that your attention is called to 665,000 yards of moss on 75 miles of railway, does it not occur to you that that is an inflamed figure?—A. It looks very big.

Q. If your attention had been called to the information which we have just shown you, would you have done anything about it?—A. I could not say whether I would or would not, because I cannot remember how that was going out, except it came in from the engineers on the work.

Q. Assuming that it did come in from the engineers on the work, and your attention had been called to it, and recognizing, as you must have done, that it would influence these bids something like $200,000, you would have paid attention to it and looked into the matter?—A. Yes. This is the first I recollect seeing that.

By the Chairman:

Q. Could you conceive that there would be that much moss in that country?—A. We were led to believe in the first start that there was a great deal more moss in that country than there turned out to be—more soft bottom, I mean. There was generally moss on top of clay, and only two or three feet of it, and no muskeg at all.

Q. I wish you could answer me fairly directly in regard to that, that if you had known that that large amount was there, that you would have given this matter attention?—A. I presume the information I had at the time that we made up the quantities was that that was the amount. I cannot recollect anything about it at all.

Q. Here is a letter dated October 14th, 1912, from T. S. Armstrong, which reads as follows:—"With regard to moss, this is the one item in the schedule that was never seriously considered. It was never mentioned in the return of quantities by the locating engineers, and personally I knew nothing of what quantity there might be, but in my travels to the locating parties, I knew that in some places in the woods it was a couple of feet deep, and as this item was in schedule form 89, we took the profile, and on level swamp country I simply add enough moss to cover, in case it might have to be moved. The moss was only moved and wasted when found necessary in shallow embankments; also on original estimates the yardage was not deducted from earth quantities". It would appear from this letter that Mr. Armstrong would have taken that 665,000 yards item into account?—A. I forget whether it was on that section or not.

Q. I understand he had charge of the locating parties and made the original estimates?—A. I cannot say where the quantities came from: I do not remember.

Q. In the tenders and in the contract is included several items for which prices were not given. I have in mind engine houses?—A. Yes.

Q. Was it your understanding that the engine houses really would go with the grading contracts when these specifications were drawn?—A. I do not recollect that the engine houses were mentioned at all. I do not think at the time those contracts were let there were any plans that they could bid on. That is my recollection. I do not think they were included, because I do not think there was a plan of an engine house at that time, and they could not tender. I do not suppose it was intended to cover it.

Q. But the contractors subsequently held to it that they must be contractors for the engine houses on force account, or on some basis that might be agreed upon?—A. If we were including those things we should have had a price in the schedule for them.

Q. Your opinion is that it was not fair to hold those under the contract?—A. No, but if the contractor saw fit to do the work, we might let him have it afterwards, but I do not think that the engine houses or section houses were covered in this contract, because no prices were given.

Q. With reference to a proposed point 65 grade west of La Tuque, you remember making a recommendation to the commissioners that you be allowed to construct this La Tuque pusher grade?—A. Yes. That was an eastbound grade.

Q. You felt when you made that recommendation that it was a proper, economical thing to do?—A. Yes.

Q. Why did you not do it?—A. Because we were not allowed to do it.

(EVIDENCE TAKEN IN N.T.R. OFFICES).

Ottawa, March 28th, 1911.

HUGH D. LUMSDEN, recalled:—

By Mr. Gutelius:

Q. Were you ever given to understand by the Commissioners that you were limited to expenditure in connection with the construction of the railway, so far as your department was concerned?—A. Not that I recollect of.

Q. When you accepted and approved the specifications, was it not with the understanding that the interpretation so far as solid rock was concerned, should be the same as that to which you had previously been accustomed?—A. I understood it so.

Q. The instructions to engineers contained in the little book, in the matter of curvature, limited the curvature to six degrees for main tracks?—A. Yes.

Q. In approving these instructions, was it that six degree curves should be adopted, no matter what the cost of the railway should be, at these points of curvature?—A. The six-degree limit of curvature was given in order to limit the engineers on the ground from making any alignment, using anything more than six-degree curves, but had special cases been brought to my notice, I would have considered whether the use of somewhat sharper curvature might, owing to the great saving in expense, have been adopted.

Q. You understood that to increase any single curve on the main line over six degree would have required the approval of the Commissioners?—A. Yes.

Q. And the Grand Trunk Pacific?—A. Yes.

Q. The reason for that being that the Commissioners and the Grand Trunk Pacific had approved of these instructions?—A. Yes; well, I don't know about the instructions; I do not know definitely whether they approved of them or not, but it was an understood thing we were not to exceed six degrees.

Q. Was it not understood by you that they did approve these instructions because they did not object to them?—A. I do not think their signature was ever obtained to them that I remember of.

Q. But you understood they approved those instructions?—A. Generally, I believe they did. I have no recollection now whether any objection had been raised or not.

Q. In the matter of your interpretation of the solid rock specification, in which you introduced what has been known as assembled rock, item number 5 of your blue print, in view of the position which you had taken in connection with solid rock classification in the correspondence and discussion, and in the Lumsden enquiry, will you tell us why you made this interpretation?—A. To conciliate the Commissioners and the contractors, I consented to this interpretation, although I never personally agreed with it.

Q. In connection with the purchase of the surveys, plans, profiles and note-books from the Grand Trunk Pacific, what proportion of those surveys were of any use to you in locating the National Transcontinental Railway?—A. From Winnipeg to a point, say sixty to a hundred miles, or thereabouts, east of the north end of Lake Nipigon.

Q. You did not make any use of the surveys from that point to North Bay?—A. No.

Q. Considerable money might have been saved in this railway if virtual or momentum grades had been used?—A. I say there might have been.

Q. Why did you not take advantage of this economy?—A. Because, in my idea, we would not have had then actual four and six-tenths grades.

Q. And you felt that actual four and six-tenths grades were the character of a railway that you were expected to build?—A. Yes.

Q. In the matter of train fills on contracts 9 and 10, from the correspondence we note that you figured that 36 cents was the proper price to pay for trail haul filling on these contracts. At a meeting at Quebec between the chairman and the contractors, you consented to a price of 55 cents per cubic yard being paid. In your letter of January 22nd, 1907, you state that you eventually consented to a price of 55 cents per cubic yard, "which, in my opinion, is a very good one"?—A. Yes.

Q. Did you mean that 55 cents was a very big price to pay?—A. That was my opinion.

Q. How did you happen to consent to this high price?—A. From the expressions made by the chairman.

Q. What do you mean by that?—A. I remember distinctly the chairman coming in at the tail end and saying we should settle it.

Q. And that was the price at which it was settled?—A. Yes.

Q. At the same meeting in Quebec it was also decided that two prices should be paid for piles, whereby piles delivered would cost 20 cents, and piles in the work 60 cents, instead of 40, as called for in the contract?—A. I think that 40 cents must be piles driven; I assume that; I am not sure; I do not remember that settlement, but I have no doubt it must be so.

Q. In your letter you state "I also allowed the 20 cents per lineal foot for piles delivered, as well as 40 cents per foot for piles driven, having found in making a comparison of the tenders that it had been so computed". That is a very flimsy reason for giving the double price, is it not?—A. As I told you, I do not remember anything about that settlement, but I know there was some trouble about the difference between what the contractors understood and what I understood. I know there was a dispute between the contractors and myself as to the interpretation of that, and, for that reason, the subsequent schedule was changed, making it clear that there was a separate price for the driven piles and the other, and it was settled that those contractors should receive the two prices, at that meeting.

Q. In connection with the pusher grade from St. Francis River east, did you make an endeavour to secure an economical rate for a pusher grade, or did you simply take the lowest grade that seemed consistent with this character of railway? —A. I took the lowest grade.

Q. An unwritten understanding among the engineers indicated that, if it were at all possible, steel bridges and trestles should be on tangents? Was that intended to be a hard and fast rule?—A. It was generally, but exceptions might have been taken which would have been submitted, and I have no recollection of any being done.

Q. If a considerable amount of money could have been saved, you would not have hesitated to put light curvature on some of those structures?—A. I think not.

Q. What was your intention when you decided to use 80 pound rails on sidings and in yard tracks?—A. It made a uniform rail on the system, and my idea was that the rails of the sidings should have been used for repairs on the main line, as long as it was under government operation.

By the Chairman:

Q. What would you put in the place of those rails when you took them out? —A. We would then have got in relaying rails.

By Mr. Gutelius:

Q. You would then have got in second hand rails to take the places of those which you would transfer to the main line?—A. Yes.

By the Chairman:

Q. A sixty pound rail is sufficient for a yard, is it not?—A. Well, they do not care about them to-day.

Q. Sixty-five?—A. Yes,

By Mr. Gutelius:

Q. If you had known that the Grand Trunk Pacific Railway were going to take over the railway as the rails were laid, in the interest of economy, would you not then have used lighter rails in the sidings—if the Grand Trunk Pacific were agreeable?—A. I think I would have.

(CONTINUATION OF EXAMINATION OF HUGH D. LUMSDEN, FRIDAY, MARCH 29th.)

Examined by Mr. Staunton:

Q. The contractors tendering for the general work and grading of building the railway, included in the tenders, an offer to build the engine houses and section houses. In the contracts for the general work subsequently let these houses were included?—A. That is so.

Q. In the schedule of price there is no price given at which these section houses and engine houses are to be built?—A. There was no price given.

Q. So that unless the price is to be governed by Clause 35 of the contract, the price was a matter of negotiation between the commissioners and the contractors after the contract was signed?—A. Yes.

Q. As a matter of fact, do you know that these structures were built under force accounts?—A. I cannot answer that question, I do not recollect.

Q. Why was it that prices were not arranged for the building of these engine houses and section houses?—A. Because at the time the contracts were let no plans and specifications for the engine houses and section houses had been prepared.

Q. Was it not improper to ask for tenders on these works until plans and specifications had been prepared?—A. It would be better if they had not been asked for.

Q. You mean that it would have been better to have struck out the words "engine houses and section houses" from the tender and contract?—A. Yes. If it was in the tender it should have been stricken out in the contract.

Q. With reference to Fauquier, Contract No. 18, we notice an item in your preliminary estimates of some 600,000 yards of moss?—A. I do not recollect it.

Q. Did you make a comparative study of the various tenders in comparison, a comparison with each other, for the commissioners before they let the various contracts?—A. I think not; I simply figured out the tenders from the memorandum given.

Q. So that in the ordinary course it was possible for the 600,000 yard item to pass by you, and if the Commissioners were not accustomed to making comparisons of this character, items like this could pass?—A. I was not in a position to say. I had never been in that country, I would not know about the 600,000 yards of moss. I might think that it was extravagant, but not being on the ground I took the figures of the Engineers who were there. That is my recollection of the thing. In fact I did not remember anything about that moss until it was mentioned later.

Q. You do not feel that you are called upon to make a study of the various tenders to ascertain whether there was any trick bids?—A. I do not recollect making any study of them.

Q. In the matter of the three piers built by the pneumatic caisson process, I note in your letter of December 6th, 1906, to the commissioners, that you concur with Mr. Uniacke and Mr. Butler in the use of the pneumatic process for placing the foundation of these pedestals in the waterway at Cap Rouge River for the carrying on the viaduct?— A. Yes, I wrote that letter.

Q. It is not the fact that you did not know anything personally about that?—A. I knew nothing personally about pneumatic works and I said so.

Q. You simply trusted to what had been done by Mr. Uniacke and Mr. Butler?—A. Yes.

Q. And the chairman?—A. And the chairman.

Q. Do you know that the Commission was familiar with that pneumatic arrangement?—A. I am satisfied they were.

Q. I show you a copy of a letter of Mr. McPherson, dated January 8th, 1908, in which he refers to the construction of the pusher grade at the Little Salmon River Crossing, instead of building a large viaduct, and whereby a large amount of money could have been saved; do you recall why you did not reply to that letter or take up the matter?—A. I remember that surveys were made at that point for the purpose of doing away with the large viaduct, which were not satisfactory, as far as I remember. I have no recollection of ever being on the ground there, and I do not think I was. I remember on two occasions I asked to use .6, one at La Tuque and one east of Quebec Bridge, and I was turned down; in the first instance I was turned down by the government, and in the second instance by the Commission, and subsequently, as far as I remember, I made no application to allow an increase in grade.

Q. Do you remember taking into consideration increasing the grade at Chipman, to lessen the cost of these seven miles?—A. I do not.

Q. On our inspection, we counted many miles of embankments through level country that we thought were excessively high, what is your idea of the height that the base of grade should be above surrounding level country where the question of drainage or grade is not a factor?—A. From two to four feet.

Q. Do you realize on the day that you were persuaded to accept the 55 cents train filled price on contract 9 and 10 that that was sounding the deathknell of your wooden bridge scheme?—A. I did not realize it at that time, as far as I remember; that was in September.

Q. On January 19th, 1909, a month after that, you wrote the commissioners asking for instructions as to whether you should make provision for standard trestles and accept the Grand Trunk Pacific's offer to build at twenty-five cents in the future?—A. Yes.

Q. They never answered this letter of yours?—A. I do not recollect ever receiving an answer.

Q. There was no reason for them answering it, because you had already decided to build all these places with train fill?—A. We were not bound to build them. We could have put in permanent trestles after that if we had elected to do so, but I could not do it without their sanction.

Q. I do not quite understand why you felt that you were compelled to get their authority for the construction of permanent wooden trestles?—A. That evidently was my reason for writing to them, because they had been against my putting in wooden trestles.

Q. They had been speaking against it?—A. I talked over it with regard specially to putting in these trestles in the northern country.

Q. An inspection of the plans of buildings, which the Grand Trunk Pacific gave to you for use on the Transcontinental, indicate that they were more expensive than buildings usually used, did you accept their plans without any question?—A. I cannot recollect what occurred.

Q. You did not put an architect on to modify the Grand Trunk Pacific plans?—A. I do not recollect having done so.

Q. We do not find that you issued any instructions in connection with the crossing of muskegs, soft ground, in which the soundings would indicate the difficulty in filling either by cross-logging or pile bridges?—A. I talked over the thing often enough, but whether I had written much about it or not I do not know.

Q. Were there not some very expensive sink-holes encountered?—A. Yes.

Q. Don't you think that those you have in mind could have been crossed if pile bridges had been used instead of filling?—A. They would be temporary.

Q. By temporary you mean ten or twelve years?—A. During the life of the piles.

Q. How did you happen to allow the contracts to cover fencing of the right-of-way in that wild country; the railway is fenced from one end to the other?—A. I do not think it is; it may be for all I know.

Q. What was your intention in connection with fencing?—A. Anywhere there was a chance of cattle being in the neighborhood; I would not fence it anywhere except where the country was inhabited or in the vicinity of habitation; I never knew the whole line was fenced.

Q. You keep a diary—A. I have kept a diary since 1867. The following is an extract from my diary and shows where I was on the dates mentioned:

"Feb. 6th.—Left Ottawa during night, delayed 4½ hours at North Bay, left there 4.15, wreck near Verner.

"Feb. 7th.—Treaudeau 9.50, on train all day, 6 to 8 hours late.

"Feb. 8th.—Reached Kenora early in morning, there all day, left for Winnipeg about midnight.

"Feb. 9th.—Reached Winnipeg about 7 a.m.

"Feb. 10th.—(Sunday) in Winnipeg.

"Feb. 11th.—Drove out to Panet Road with Hazlewood and back, in Winnipeg until 7, then left by No. 2.

"Feb. 12th.—On time at Fort William and Schreiber, 20′ late at White River.

"Feb. 13th.—Reached North Bay 1 hour late and Ottawa at 4.55, went home.

"Feb. 14th.—In office all day, at meeting 12.20, Commissioners opening tenders (not present).

"Feb. 15th.—In office all day, had tenders 1 and 3 handed me before 1 p.m., and 3, 4 and 2 before 5.15, started men on figures.

"Feb. 16th.—Meeting 11.50. The Commissioners decided I was to use the estimates as returned by the district engineers and not my own, for the various sections tendered on.

"Feb. 17th.—Sunday.

"Feb. 18th.—In office all day, meeting 11.50.

"Feb. 19th.—Completed moneying out of tenders and handed to Commissioners—meeting 12.00."

Q. On the 14th of February your entry in your diary is that you were in the office all day; at meeting 12.20—that means the meeting of Commissioners?—A. Yes.

Q. Then you say: "Commissioners opening tenders, not present"?—A. Yes.

Q. Why were you not present when the tenders were opened?—A. I was not wanted, I was not asked to be present, I was asked to leave.

Q. It was intimated to you that your presence was not required?—A. I do not know it was on that occasion, but it was on a previous occasion.

Q. Why didn't you remain when the tenders were being opened?—A. Because I was told by the Commissioners I was not wanted. I do not say I was that day, but on a previous occasion I was told they would open the tenders themselves and give me the figures afterwards.

By Mr. Gutelius:

Q. It was understood you were not to be present when tenders were opened? A. Yes, that is the long and short of it.

By Mr. Staunton:

Q. What do you mean by your entry on February 16th: "Meeting 11.50. The Commissioners decided I was to use the estimate as returned by the district engineers and not my own for the various sections tendered on."?—A. Some days

before the tenders were expected in, I don't remember the time, I had given Mr. Parent a copy of the quantities in the different sections. Between that time and the time of the tenders coming in, I did not give this out, the Contractors had no knowledge of this; I thought we would use a lot of timber and trestles in that eastern country, and I put in a lot of timber and deducted a certain amount of earthwork to correspond. It was found out, either on the day of the meeting or the day following, that I had changed the quantities from the time I had given them to the Chairman, and I was instructed not to use the quantities that I put in, but to use the same as I had previously given them to the Chairman.

Q. Then, I understand that you first prepared an estimate founded on the information sent to you by the various district engineers?—A. Yes.

Q. And that you prepared a new statement on these estimates showing that in detail?—A. Yes.

Q. And afterwards you changed the estimates?—A. Certain items in the estimates.

Q. And subsequently you were directed not to use these changed estimates, but to use the original ones?—A. Yes.

Q. I suppose that when you figured out the tenders you used these original and not the amended estimates?—A. I used what they told me to use, that was the estimates as returned by the district engineers.

Q. From whom did you get your instructions as to that?—A. At the board meeting, from the Chairman, I presume.

Q. Why did you put in your diary the entry that you were not present when the tenders were opened?—A. I do not know why I put it in.

Q. Do you think as chief engineer you ought to be present when they were opened?—A. I cannot tell you what was in my mind; I was perfectly willing not to be present.

Q. You did make a note of it for future reference that you were not present at the opening of the tenders?—A. I was not present at the opening of any of the tenders, that I remember, for general construction.

The witness was not further examined.

(NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATING COMMISSION: AT OTTAWA, OCTOBER 3rd, 1912.)

Present:—G. LYNCH-STAUNTON, K.C., *Chairman;* F. P. GUTELIUS, C.E., *Commissioner.*

D. MACPHERSON, assistant to the Chairman, sworn:

By Mr. Gutelius:

Q. You were assistant chief engineer of the National Transcontinental Railway, between what dates?—A. 15th July, 1905, and I am not exactly sure of the date, some time in November last, 1911, I think that is approximately.

Q. And prior to that time?—A. Division engineer on the C.P.R. eastern division.

Q. Your total engineering experience, then, covers how many years?—A. Approximately, twenty-five years with the C.P.R., and seven with this, thirty-two years.

Q. Were the original specifications for the construction of this railway prepared prior to your assuming the position of assistant chief engineer?—A. Yes.

Q. Who did you understand prepared these specifications?—A. Well, I understand that Mr. Butler had the most to do with them for the Transcontinental; I have also understood that Mr. Woods for the Grand Trunk Pacific Railway; I do not know whether Stephens had previous to that or not. I am only speaking from hearsay about that anyway.

Q. Did you in your official position have to do with the preparation of the general instructions to civil engineers on the Transcontinental Railway?—A. No.

Q. These (showing book) are not the original instructions, Mr. MacPherson?—A. No.

Q. (Showing book) Kindly refer to clause 26 in which it is stated that the maximum curve on the railway shall not exceed six degrees—if you had prepared these instructions, Mr. MacPherson, would you have adopted a positive limitation of six degrees for a railway of this character and through a country of this character?—A. I think I would, on the hypothesis that we were building a high-class road, I would have limited it to six miles unless there was something very very special. As a general rule, I would have stopped at six as a maximum.

Q. I notice further that this paragraph requires at least six hundred feet between transition curves. Would you have required any such distance between curves if you had prepared these instructions?—A. I would not have made that hard and fast, no. If it would have saved a lot of money by tracking that out, I would have allowed the transition curves to run together.

Q. Would you have allowed them to run together where the curvature was compounding or reverse, if you had full lengths of transition curves?—A. I think I would have preferred a short bit of a tangent on reverse, I think.

Q. In passing over the railway, we noticed a number of high-trestled bridges built on tangents with approaches that were very expensive, whereas cheap approaches could have been provided if these steel trestles had been constructed on curves. Do you see any objection to building steel trestles on curves?—A. Well, I would certainly prefer them on the straight, but I would think that every particular case would have to be gone into on its merits, whether the additional cost of putting them on the straight was justifiable or not.

Q. In your engineering experience, have you ever formulated any monetary value to be placed on the difference between straight or curved bridges?—A. I do not think I ever went into it in any great detail.

Q. It was simply the general element of safety that a straight track has over curves?—A. Yes, that and the element of cost.

Q. By reference to the original general specifications, I note that under instructions to persons proposing to tender, paragraph 4, wherein it is stated: "Any tendering in which the prices stated for the several items are unbalanced may be rejected." Do you know why that was eliminated from the revised specifications?—A. I do not know, I am sure.

Q. Who could tell this Commission?—A. I do not know unless the chief engineer or the commissioners for the Transcontinental.

Q. Don't you think, Mr. MacPherson, that that clause, or one similar to it, should have been retained in the subsequent issues of the specifications?—A. A clause giving power to the chief engineer to deal with unbalanced tenders should be a portion of every specification.

Q. We have before us, the comparative estimate of tenders for district F, which bears your signature (showing print)?—A. Yes.

Q. Kindly refer to the items, "Piling delivered as per engineer's bill and piling driven". In tender No. 4, "Piling delivered" is quoted at twenty-five cents and "piling driven" at fifteen cents?—A. Yes.

Q. Alongside of the fifteen cents, I see the words, "driving only"?—A. Yes.

Q. Whereas these words are not used in either of the other three tenders, how did they happened to be used in the case of tender No. 4?—A. These words were used on the extracts from the numbered tenders which were supplied to the engineering commissioners to money out. These words were used on that one tender only.

Q. Just explain to the Commission what information was given to you when you prepared this comparative sheet?—A. The items on a blank schedule, the different numbers, and the prices opposite each item.

Q. And how did you prepare this statement?—A. By multiplying the quantities by the prices of each tender, the prices opposite each tender.

Q. In tender No. 2, "piling delivered" is quoted at twenty cents, and "piling driven" at thirty-five cents?—A. Yes.

Q. I notice that you multiplied out the twenty and thirty-five against the quantities given in tender No. 2, the same as you did in tender No. 4, where the prices were twenty-five cents for "piling delivered" and fifteen cents for "piling driven"?—A. Yes.

Q. How do you explain that?—A. Simply that our instructions were to multiply the quantities by the prices given.

Q. Then, so far as this statement is concerned, it was simply a case of multiplication and addition?—A. Yes.

Q. Now, Mr. MacPherson, as an engineer, ought there not to have been some re-arrangement to get a fair comparison of these tenders, of the prices shown in tender No. 2 and tender No. 4?—A. If I had been dealing with it, as chief engineer, I would have asked the tenderer for an explanation of why there was such a large price for the piles driven as against for the piles themselves.

Q. Surmising, before asking them, that tender No. 2 included the price of piles and driving in the second tender——A. I would suppose that by the figures, yes.

Q. This is what you would call an unbalanced bid?—A. Not necessarily, no.

Q. But the character of the bid did not probably convey the intent of the contract?—A. I would have asked him what it meant.

Q. Because the prices given were unusual?—A. Unusual.

Q. In your experience, in Transcontinental tenders, were the contractors ever questioned on account of unusual prices to your knowledge?—A. I could not answer that offhand.

Q. As far as you know?—So far as my recollection goes, no.

Q. If the clause concerning unbalanced tenders, to which we referred a moment ago, had been continued, it would then have been a natural thing to take unusual bids up with the contractors, would it not?—A. Either that, or use the chief engineer's discretion and throw them out, but take them up in some way.

Q. But without the clause concerning unbalanced tenders, it was understood that tenders should remain exactly as they were given to you?—A. That was my understanding, that we had to take them just as they were given to us.

Q. To get a fair comparison of tender No. 2 and tender No. 4, what transmissions would you have felt at liberty to have made, if left to your own discretion, to secure a fair comparison?—A. I would have asked the man who tendered No. 2 for an explanation of his figures, what he really thought they meant. That is the first thing I would have done.

Q. There was no doubt as to what tender No. 4 meant?—A. No.

Q. Because you made a notation of driving only?—A. Yes.

Q. Is there any doubt as to what tender No. 2 meant when you made such notation, having the title and description "piling driven" in mind?—A. I think there might be some doubt. I think it would have settled that at once just to have asked him and got that clear, so that there would be no qualifications. That would have been my reason for asking for an explanation.

Q. If there was any doubt as to the meaning of those tenders, there must have been doubt as to the total amounts?—A. Oh, yes.

Q. So that, these statements, so far as those two items are concerned, although carried out mathematically correct, conveyed in the grand totals, a doubtful meaning?—A. The meaning was not certain, that follows from the doubt in connection with the two items.

Q. (Showing sheets.) What are these sheets which we are looking at?—A. To the best of my knowledge they are the original sheets handed to us by the commissioners to money out the tenders for District F.

Q. This sheet is the one referred to in your statement as tender No. 4, is it not?—A. Yes.

Q. I see 40 red ink prices shown on this sheet, what are they?—A. They are engineers' prices. These are opposite items for which the contractor had not filled in any prices.

Q. And they were taken from?—A. They were taken from a schedule of estimated prices made up by the engineers.

By the Chairman:

Q. By whom?—A. Originally by the district engineers, revised and checked.

Q. Who filled in the red ink figures?—A. Well, I cannot say exactly who filled them in, but they were filled in, and a note was put on the sheet here that they were engineers' prices for which no prices had been given by the contractors. I could not say who filled them in.

Q. Somebody in the engineers' department, was it not?—A. I think so; they might have been filled in by the secretary, he sent these to us originally. I am not quite sure, but I think they were filled in by the engineers. The matter was discussed with Mr. Lumsden. That is my recollection, but I cannot say positively.

By Mr. Gutelius:

Q. And they are the same prices that were used for the same items in your comparative estimates?—A. They should be.

Q. By reference to Item 61, "concrete 1-3-6, price $15.00"; immediately under it, Item 62 "concrete 1-3-5, $13.00"; is there anything peculiar about these two prices, Mr. MacPherson?—A. The better concrete should be the higher price, and it is the reverse in this.

Q. That is what is known as an unbalanced tender, is it not?—A. Yes.

Q. Item 64, "concrete 1-3-6, $11.00" that is $4.00 cheaper than the ordinary 1-3-6, is it not, and the same class concrete?—A. Yes, $4.00.

By the Chairman:

Q. And the same concrete?—A. The same mixture.

By Mr. Gutelius:

Q. The largest item of concrete in the engineers' estimate is this $11.00 mixture, is it not?—A. Yes.

Q. So that the unbalanced bid in that one item would amount to something like $28,000?—A. Yes.

Q. What are the totals of tender No. 2, and tender No. 4?—A. No. 2 is $30,028,753.35.

Q. And tender No. 4?—A. $30,010,398.92.

Q. So that the total of tender No. 4 was so much lower than the total of No. 2?—A. $18,354.43.

Q. If the piling prices had been changed, as had been suggested, tender No. 2 would have been reduced how much?—A. I do not understand you when you say changed, as suggested.

By the Chairman:

Q. If it had been assumed that the tenderer meant by "piles driven" to supply and drive the piles for that price, the tender would have been so much less.

By Mr. Gutelius:

Q. It would have reduced tender No. 2 $51,742.00?—A. Yes.

Q. And if the $11.00 concrete had been returned at $15.00 in tender No. 4, it would have increased tender No. 4 how much?—A. $28,196.00.

Q. So that it required the doubtful moneying out in connection with the piling and the unbalanced price interpolated on the authority of the chief engineer, to make tender No. 4 lower than tender No. 2?—A. Yes.

Q. Did you know at the time that you made up this statement that these doubtful conditions existed?—A. Yes, I knew that.

Q. And the chief engineer knew it, because you had discussed the matter with him?—A. Yes.

Q. Now, with reference to your letter of August 9th, 1907, to J. C. Dunn, concerning water supply (witness shown copy of letter) in which you say that if you got a certain gravity supply of water at any point you would be justified in expending $25,000 more than it would cost to install a pumping plant, "as understood on first cost, allowance for depreciation of plant and cost of running the most economical gasoline pump, would amount to at least $1,000 per year, when the pump is installed under the tank."—How did you arrive at the $25,000?—A. I cannot answer that offhand. I had prices for pumps and things, and assumed a value for a man to handle the pump and found out it cost about $1,000 a year to run it.

Q. So that you based your capitalization at an operating cost of $1,000 a year?—A. Yes.

Q. You know that on other railways, one pump man operates two and sometimes three pumps?—A. I know that on the C.P.R. one man sometimes runs two and three pumps.

Q. If that were the case, $1,000 would be high?—A. Yes.

Q. What number of engines did you expect would take water at each of these tanks?—A. We figured on twenty daily trains between Moncton and Quebec, and between Winnipeg and North Bay, that is ten trains each way.

Q. And with ten trains each way, you must have figured that one man's time would be required continually at each pump?—A. Well, I figured that that would be the maximum that would be required.

Q. And you provided for the maximum?—A. Yes.

Q. Don't you think now, Mr. MacPherson, that it would have been better to have made a lower figure for a gravity supply, having in mind that the traffic will not, for some years, be equal to twenty trains per day?—A. Well, yes. I doubt if we did expend $2,500 for a gravity plant on District A. Certainly that would be an extravagant estimate.

Q. So that, if you had had the construction of the plant at Hamburg, which cost $21,722.00, you would not have expended so large an amount of money?—A. Not for a less number of trains, certainly not. It was based on the twenty trains daily.

Q. Don't you think that for a new railway, for the first ten years' operation, it would have been fair to estimate $40,000 per day for twenty tanks?—A. That is quite possible and probable, I might say.

Q. Would you like to modify this statement?—A. I am willing to admit that I overestimated.

Q. I notice that the grade for the westbound pusher grade, District B, west of the St. Francis River, was made on a 1.1 grade, and also that the pusher grade near Tobique, which is against east bound traffic, four-tenths maximum, is also a 1.1 grade. How do you harmonize the use of the same degree of pusher grade in both directions?—A. Well, I do not think they do harmonize. My views of that were, that for a long time to come the traffic in either direction would not necessitate trains too large to haul up either of those grades without pushing.

Q. It will be a long time before they would haul heavier trains with the same class of engines over the Transcontinental than they would haul on the Intercolonial, assuming that the maximum on the Intercolonial grade is 1.1?—A. On that particular section, yes.

By the Chairman:

Q. That is between Quebec and Moncton, you mean?—A. There would be more than one divisional plant. Yes, so far as the engine divisions in which these particular grades are located.

By Mr. Gutelius:

Q. You are familiar with the character of the structure known as the Ludger Noel arch, 141, District B, west of Quebec?—A. I saw it last autumn for the first time.

Q. What criticism have you to offer against that arch?—A. My particular objection is that the bench walls were made, abnormally high, higher than shown on our standard plans.

Q. How much money would have been saved, if the standard plan had been followed?—A. It was estimated about $14,000.

Q. And you consider, Mr. MacPherson, that that extra concrete was practically wasted?—A. Absolutely so.

Q. In the matter of concrete mixture, we have ten different prices for concrete in our contracts, do you think such a large number of mixtures was necessary or advisable?—A. No.

Q. What are some of the objections?—A. The fewer number of items you have to deal with, the fewer sources of trouble there are, certainly.

Q. The mixture 1-2-4 concrete was used in the pedestals for the Little Salmon River viaduct, and the Rivière du Sud arch. Do you think that these structures required a mixture as strong as this?—A. No, I do not.

Q. What mixture do you think should have been adopted?—A. I think a 1-3-5 was good enough.

Q. And ordinarily 1-3-6, as provided in the specifications, would have been ample, would it not?—A. 1-3-6 in the body of the walls, and 1-3-5 in the arch work.

Q. In our inspection, we noticed many embankments in prairie country where the base of rail was six feet above the level of the surrounding prairie. Assuming that there were no gradient conditions, and that the banks were raised simply for snow through timbered country, what limitation would you have placed on the height of those embankments in the interest of economy?—A. Through timbered country, where the snow was not liable to drift, a two feet embankment would be ample.

Q. If you were on open prairie, would you raise it two feet more?—A. Yes.

Q. Why were trestle bridges not adopted in crossing gulleys and streams that would not have been made from the excavations in the vicinity of this railway?—A. Do you mean in preference to steel bridges?

Q. In preference to steel bridges, or filled in?—A. Our instructions were that everything was to be made permanent, I think in accordance with the Act.

Q. Do you know of any instructions?—A. The impression that was conveyed to us all was that the railway should be of a permanent construction.

Q. As an engineer, did you join Mr. Lumsden in his suggestion to use wooden trestles?—A. In some specific cases that came up, yes. I know I discussed it with the chief engineer, and was in sympathy with it, but whether I took personal action on it or not I do not remember.

Q. Is it possible to estimate absolutely now, what saving in the construction of this railway might have been effected if wooden trestles had been used?—A. I think it can be estimated very closely.

Q. Who prepared the plans for the buildings?—A. The Grand Trunk Pacific engineer.

Q. What buildings did their plans cover?—A. Station buildings, engine houses, coaling plants, turn tables, freight sheds, ice-houses, store houses, trainmen's houses, some section houses, and tool houses.

Q. How were those plans transmitte dfrom the Grand Trun kPacific to the National Transcontinental?—A. Sometimes to the chief engineer from Mr. Woods, the assistant chief; sometimes from Mr. Kelliher, and sometimes they came to me. They were not always addressed to the same person or from the same person.

Q. And you accepted those designs and put them into effect?—A. Yes.

Q. In the matter of yard plans, did you confer with the Grand Trunk Pacific in the preparation of the plans for the Graham yard?—A. Yes.

Q. And they concurred with you in that design?—A. I think there was some suggestion made by both sides, but Mr. Woods and I agreed on the plan.

Q. I have before me a letter dated November 20th, 1905, addressed to Mr. Lumsden, chief engineer, which appears to be written by yourself. Did you write that letter (witness shown letter)?—A. I did.

Q. It reads as follows:

November 20th, 1905.

"H. D. Lumsden, Esq.,
"Chief Engineer,
"Ottawa.

"Dear Sir,—

"Attached is correspondence I have had with our district engineers "and with the assistant chief engineer of the Grand Trunk Pacific Railway, "on the subject of virtual grades.

"You will see that some of our engineers are in favor of using same "in certain places, and some are not. Mr. Woods is not in favor of using "them. They are degrees only suitable for undulating country and not for "long stretches of country on maximum grades.

"Engineering has been described as the art of making a dollar earn "the most money, and a judicious use of virtual grades at points where "the locomotive engineer has a chance to 'take a run at the grade,' would "undoubtedly save money in construction and admit of the line being "operated with maximum virtual grades of 0.4 and 0.6, though the actual "grades would appear on the profile as steeper. Of course, if we have actual

" grades of 0.4 in locations where the engine can get a run at them, they can
" be operated as virtual grades of less slope, and the haulage capacity of the
" engine will be greater than on a virtual grade of 0.4. Will you kindly let
" me have your ruling early as to whether or not we shall use virtual grades
" where possible. Please return the file.

" Yours very truly,

" (Signed) D. MacPHERSON,
" *Assistant Chief Engineer.*"

This letter expresses your present opinion of momentum grades?—A. Yes.

Q. Is it possible for the Commission, now that the railway is practically built, to secure from the Engineers' Department, any reliable information as to what might have been saved had momentum grades been used?—A. I think they could collect sufficient information to estimate the saving.

Q. The locating engineers should really have had instructions in connection with momentum grades, should they not?—A. I think they should.

Q. So that any momentum grades which we might project on the profiles of the line as built, would be comparatively insignificant as compared with what might have been accomplished by adopting this economy when the line was located?—A. Yes.

Q. Why were these suggestions contained in your letter of November 20th, 1905, not followed by instructions to build the railway in this manner?—A. Because the chief engineer instructed me that momentum grades were not to be used.

The Commission adjourned.

A. T. TOMLINSON, sworn:

Examined by Mr. Staunton:

Q. What is your occupation?—A. Civil engineer.

Q. You have been a civil engineer for how many years?—A. Thirty years.

Q. And where did you gain your experience?—A. Pretty nearly all over the country.

Q. You have been constantly engaged in railway construction of one kind and another for the past thirty years?—A. Yes.

Q. When were you first engaged on the Transcontinental?—A. In my present capacity I was first engaged——

Q. In any capacity?—A. At the first I was engineer on the prairie on the Grand Trunk Pacific.

Q. But on the Transcontinental?—A. February, 1909.

Q. In February, 1909, you were engaged as what?—A. District engineer.

Q. For whom?—A. The Grand Trunk Pacific Railway Company.

Q. On what district?—A. Districts D. and C.

Q. How long did you continue in that capacity?—A. Ever since.

Q. Are you still district engineer now?—A. Yes.

Q. Have you been engaged in any other capacity during that time?—A. For a short period this work was left without a superintendent.

Q. What work?—A. Contract 14 was left without a superintendent for the contractor, and I took his place for a short time last fall and last winter.

Q. The Grand Trunk Pacific took the contract for the work where?—A. On contract 14.

Q. And they sublet that contract to some person else?—A. To Foley, Welch & Stewart.

Q. Did the Grand Trunk Pacific Company do any work on it themselves?—A. No.

Q. They sublet the whole contract?—A. Yes.

Q. Do you know on what terms it was sublet?—A. Yes.

Q. What were the terms?—A. Foley, Welch & Stewart were to receive five per cent of the estimates.

Q. That is to say, they were to receive five per cent on the gross cost of the work?—A. No, they were to receive five per cent on the estimates returned.

Q. What do you mean by that?—A. Well, the whole work, for example, might cost four millions: the estimates might be five millions; they would get five per cent on the five millions.

Q. These estimates, then, were made before the work was undertaken?—A. No, this contract was originally let to the Reynolds Construction Company.

Q. By the Grand Trunk Pacific?—A. Yes.

Q. They defaulted?—A. They failed.

Q. And did not undertake the work?—A. Oh, yes, they came and worked for a year and failed, and the Grand Trunk Pacific finally arranged with them to have them leave the work. They were unable to go ahead without financial assistance, and we got them to——

Q. You were not satisfied with the way they were doing the work and got them to give up the contract?—A. Yes, and then Foley, Welch & Stewart took it from them.

Q. Did Foley, Welch & Stewart know, when they took the work, upon what they were going to get the five per cent?—A. I presume so.

Q. Had the estimates been made at that time?—A. The estimates were made from month to month.

Q. Before the work was done?—A. No, made by the Transcontinental engineers from month to month, and turned in to Ottawa——

Q. Before the work is done?—A. After the work is performed.

By Mr. Gutelius:

Q. Before the whole of the work is completed, and after the portion of the work which they pay for is completed.

By Mr. Staunton:

Q. I understand an estimate is to be what a man figures a thing will cost?—A. That is the real meaning of an estimate. It is a guess at what it is going to cost, but we use the word "estimate" as a return of the quantities done during a certain period. The monthly estimate covers the engineer's judgment, or his absolute computations, of what was done during that month.

Q. And that is what they are paid?—A. Yes.

Q. Had they a resident engineer?—A. No.

Q. Who had they?—A. They had just their superintendent.

Q. Did you then become superintendent for Foley, Welch & Stewart when their superintendent left?—A. I was asked to take charge of the work during the remainder of last season.

Q. On the leaving of whom?—A. Of Mr. Swenson.

Q. When did he leave?—A. I think some time in July.

Q. Did you become superintendent on that work for Foley, Welch & Stewart in July last?—A. Yes.

Q. Were you regularly in their employment?—A. Well, no, I do not suppose you could say I was regularly in their employment.

Q. What I mean by that, were you paid by them?—A. Yes, I received remuneration from them.

Q. They paid you a salary for acting as superintendent?—A. Yes.

Q. And at the same time did you continue to receive your salary from the Grand Trunk Pacific?—A. Yes.

Q. Was this arrangement as to engagement and salary made with the knowledge of the Grand Trunk Pacific?—A. It was.

Q. And with their approval?—A. I presume so, they never objected to it.

Q. Did you have any conversation with any of their officials?—A. Yes, Mr. Woods, assistant chief engineer of the road, came up to me several times; he came up to see me several times when I was in charge of the work.

Q. Did he know you were in charge?—A. Yes.

Q. Am I right in saying that with the knowledge and approval of the Grand Trunk Pacific you were acting as superintendent from July till the 1st of April under salary from Foley, Welch & Stewart on this contract 14?—A. Yes.

Q. And you were acting in the double capacity?—A. Yes.

Q. Did your salary with the Grand Trunk Pacific continue during that time?—A. Yes.

Q. Have you discontinued that dual employment?—A. I have on the 1st April. When this season's work commenced it was not thought desirable to keep it up, because there was no logical man last season that could take hold of this work as well as I could.

By Mr. Gutelius:

Q. No man who was available?—A. No. The man who should have taken it unfortunately died; Archie Smith. He unfortunately died a month or two before.

By Mr. Staunton:

Q. Is this a correct statement of Foley, Welch & Stewart's position, as you understand it: they are doing the work on an arrangement whereby the Grand Trunk Pacific supply all the equipment and plant and are getting a percentage of the estimates for their remuneration?—A. Yes, all the equipment and plant is charged to the work.

Q. The equipment and plant is supplied by the G.T.P.?—A. Yes, that is the equipment and plant that is here now. Foley, Welch & Stewart supplied the small car equipment and that sort of thing, when they were here, when they were working at the grading, but not the standard equipment.

Q. Then, in effect, is it not that they are simply managing the work for the G.T.P. on a percentage?—A. Practically so.

Q. What were your duties as district engineer for the company?—A. I think the Act pretty nearly covers that, that the Grand Trunk was supposed to supply district engineers, who conferred, or——

Q. What duties did you perform as such?—A. It was to confer with district engineers here on classification, and to adjust any differences of opinion as each understood it.

Q. What do you mean? If there was a dispute between whom?—A. We were supposed to go over this work and watch the classification, and if we thought there was any wrong classification, to take the matter up with the district engineer; if it could not be adjusted in that way, I generally referred it to Montreal, and it was taken up with the chief engineer.

By Mr. Gutelius:

Q. The object really was to see that the classification was not too high; in other words, that the work was done economically?—A. I think that was the idea.

By Mr. Staunton:

Q. That was the understanding?—A. I looked upon it that we were here to see that the contractors were not overpaid, and in some cases questions have come up as to whether they had not been underpaid.

Q. Did you ever intervene on classification?—A. I have.

Q. Did you ever endeavor to have the classification changed?—A. Yes, I had it lowered in some cases, after consultation. I have been called by the district engineer to go over the work with him to see whether I thought the classification was such as it should be.

Q. Have you kept a record of these instances?—A. I do not know. A great many of them are settled going over the work, and, as a rule, a tabulation has been made, and the results arrived at. I think those are on fyle as a rule.

Q. Did you always sign the classification?—A. I could not say whether that has been done on this contract; it has been done on other contracts.

Q. When you speak of this contract?—A. I mean contract 14. On the other contracts I think it was done for the simple reason that the contractors were not willing to pay their men, their sub-contractors and station men, until the district engineer came, and the district engineer of the G.T.P. had arrived at a conclusion on the classification, so that it should not be altered after they had paid their men.

Q. Did that occur on 14?—A. On 14 I do not think any agreements as to the classification were signed. I presume our accepting the estimate was considered sufficient.

By Mr. Gutelius:

Q. Did you ever put your name to them?—A. No, not to any monthly estimates.

By Mr. Staunton:

Q. How did you accept the estimates here?—A. The acceptance by the G.T.P. of payment for these estimates was to a certain extent an acceptance of the classification.

Q. Was it an acceptance?—A. The only reason they were signed on the others was because the contractors would not pay the sub-contractors until an adjustment had been made. The question was not raised.

By Mr. Gutelius:

Q. These were the progress estimates that were given to the contractors for the sub-contractors' portion of the work?—A. No, those were final estimates.

Q. The sub-contractors' final estimates?—A. Yes. On this work, as a rule, no estimates were paid to the sub-contractors, except the final estimates, as I understand it.

By Mr. Staunton:

Q. Was it to the interest of the G.T.P., as contractors, to have the classification as high as possible?—A. I would not say so.

Q. As contractors?—A. It would naturally follow that it was the interest of any contractor to have as high estimates as would be legitimate.

Q. As he could get?—A. Yes.

Q. It would be his interest to have his estimates as high as possible, as a contractor?—A. That would follow, assuming that they are in the contracting business for the purpose of making money.

Q. These estimates that were made, upon which the percentage for Foley, Welch & Stewart was fixed, were made by whom?—A. By the engineers of the Commission.

Q. In consultation with you?—A. Not as a rule.

Q. Were they ever made in consultation with you?—A. Yes, we have gone over this work, the same as we have over any of the rest, and agreed as to whether the classification was right or not.

Q. What do you mean by saying "Not as a rule"?—A. Because the estimates were made here by the resident and divisional engineers and turned in.

Q. But they are not turned in till you see them?—A. Oh, yes. I never see them until after they are turned in. Generally they are down at Ottawa for payment before I see them.

Q. Where do you come in?—A. I sometimes wonder myself.

Q. Where do you come in for consultation on classification?—A. Well, for instance. I think it was a year ago this spring, we went over—it might have been longer ago— it does not matter when it was—two years ago, I think it was—we went over one portion of the work.

Q. Who are we?—A. The district engineer and myself.

Q. Who was it?—A. I think Mr. Mattice was at that time the district engineer.

Q. What portion of that work was that?—A. That was from Cochrane to——

Mr. Mattice—Cochrane to Grant.

Witness—Yes, we went from Cochrane to Grant; we went over that and signed papers on that. I think the inspecting engineer, Macfarlane, was along too, and we took the division engineers with us, and they gave us the classification they had given on the different portions of the work, and, as we went along, we signified whether we agreed with them on their classification or not, and, if we did not, it was in some cases changed, as it might be, and I remember in one instance I happened to be down in Ottawa a few days afterwards, and it was stated in Parliament—

Q. We want only the evidence now.—A. Well, that is the only way I could get at it, that it was the district engineer or inspecting engineer advised Ottawa—

Q. Never mind that; just what you did?—A. Well, we approved of the classification over that portion.

Q. And you went over the classification with Mattice and Macfarlane?—A. And approved of the classification.

Q. Did you revise it at all?—A. Yes.

Q. Did you raise it?—A. In most cases on that piece of work we lowered it.

Q. What piece of work was that?—A. I think it was from Cochrane down to Okikidosik.

By Mr. Gutelius:

Q. That was the G.T.P. contract?—A. Yes.

By Mr. Staunton:

Q. Where did you lower it?—A. There were a number of shallow clay cuts that were classified

Q. As what?—A. As loose rock, and some portions of them were wasted, and we cut out the loose rock classification on the basis that shallow cut did not as a rule get down into the hard clay.

Q. What do you mean by wasted?—A. There were shallow cuts it was very difficult to get plant into. It is very difficult to get plant into works in this country. You have to leave it on a work for a whole year sometimes.

Q. What do you mean by wasted?—A. Wheeled out to the sides, instead of being filled.

Q. The cut was not utilized for fill?—A. No. A portion of it might be and a portion might not be, and we cut the classification out on those cuts.

Q. Because it had been wasted?—A. Yes, and because of the shallowness of the cuts.

Q. In other words, because it was not loose rock?—A. Because we did not consider that it was.

Q. Did you raise any classification on that trip?—A. I do not recollect of any. There was one trip that we made—

Q. I am speaking of that trip?—A. I do not recollect that there was any raising of classification done at that time.

Q. Did you make any other trips?—A. Oh, yes, we made dozens.

Q. Very many?—A. Yes.

Q. Over all the work?—A. Yes, we have been over all the work several times.

Q. And am I right in understanding that it was for the purpose of revising the classification?—A. No, I would not say for revising it; it was to go over it, and to see if we agreed that the classification as given was right.

Q. That is revising it; for the purpose of revising it if you found it necessary?—A. Yes.

Q. How did you revise the classification usually on these trips?—A. As a rule there were some adjustments made.

Q. Were they important adjustments?—A. Sometimes they might be called important adjustments, and other times they were not.

Q. Do you recall any that were important?—A. The most important adjustment we made was in going over work west of Cochrane. I had taken exception to the classification there the first year I came here, and at that time—

Q. Leave out the west part, because we will take that up later. Take this side of Cochrane?—A. This work was in two districts: contract 14 covered a portion of two districts, being divided with the Quebec line. We commenced doing work to the east in Quebec under Mr. Molesworth. Our station men were getting estimates which, no matter how hard they worked, did not even give them a living, no matter what we could give them, even at our own prices, and the classification was markedly different from what it was west, and Mr. Swenson, of Foley, Welch & Stewart, brought this to my attention, and said he thought Mr. Molesworth ought to come down and look over the work himself, and he did, with me, and the classification was considerably increased; in fact, before that there was practically no classification.

By Mr. Gutelius:

Q. At your request?—A. I will not say at my request.

Q. As a result of you——A. As a result of our going, Mr. Swenson went with us, and we took the resident engineers, and it appeared they wanted to give more classification, but the assistant district engineer would not allow them to.

By Mr. Staunton:

Q. Where was that?—A. That was on District 6.

Q. From the Quebec line to where?—A. From the Quebec line east as far as we were working at that time; I do not know how far we were working.

Q. About what distance would that be?—A. Probably down about to here some place.

Q. Where?—A. Beaver Dam, or some place down there.

Q. Who has classified that work before you went on it?—A. I think Mr. Wetherby.

Q. Who was he?—A. Assistant district engineer.

Q. When was that, that you went on the work?—A. That we came down here?

Q. Yes?—A. I suppose in 1910, I should think.

Q. What had he classified low, below what you thought it should be classified?—A. The clay, of course.

Q. What had he classified the clay as?—A. Common excavation, as a rule. He had allowed a small percentage of classification, but very small.

Q. Have you any idea about how much the yardage was in that?—A. No.

Q. It was considerable anyway?—A. The work was in progress at the time; I could not tell you.

By Mr. Gutelius:

Q. Do you know what residency that was on by number?—A. Yes, probably residencies from 13 or 14 up to 18.

By Mr. Staunton:

Q. Have you told me who went with you then?—A. Mr. Molesworth and myself.

Q. And the district engineer?—A. Molesworth was district engineer himself.

By Mr. Gutelius:

Q. And Mr. Swenson took an active part in the discussion, as contractors usually do?—A. Surely.

Q. The same as you would have done if you had been in Swenson's place at that time?—A. Yes.

By Mr. Staunton:

Q. And Molesworth passed on this work before that?—A. No, I do not think so. I could not bear witness to that.

By Mr. Gutelius:

Q. Mr. Molesworth would have passed on it before it would get to the contractor?—A. He had signed the estimates as they came in, but without any knowledge of what it was in the field.

By Mr. Staunton:

Q. You could not swear to that?—A. I think I could pretty nearly swear to it, but it would be almost impossible to do it.

Q. Was he on the ground?—A. He had been on the ground before that.

Q. Where was he spending his time?—A. At Mattawa.

Q. Would he periodically go over this district?—A. He very seldom came up here.

Q. Would he periodically go over it?—A. I do not think he had been over the work at all.

Q. You do not think he had been over it at all?—A. No; he might have been over some small portion, but very little. It was very difficult to get over, and he was a very old man.

Q. How old a man was he?—A. I should think he is in the neighborhood of 69; well, over 60, I should say.

Q. Had any other of the work, any other of the clay than the clay you have been telling me about been classified as common excavation?—A. Oh, yes.

Q. I mean clay which you had at that time classified as loose rock?—A. No, I do not think there had.

Q. Why did you think that clay should have been classified as loose rock? —A. Because it was not common excavation.

Q. That was not the reason?—A. That was my reason.

Q. It might be solid rock?—A. It was not solid rock and was not common excavation.

Q. Why was it not common excavation?—A. That is my judgment of it.

Q. Why? How did you arrive at that?—A. Because it could not be handled as common excavation.

By Mr. Gutelius:

Q. It cost too much for common excavation?—A. Yes, and all classification is based on the cost, I don't care what anybody says.

By Mr. Staunton:

Q. All the estimates you made were based on the cost?—A. On the difficulty of handling the material.

Q. You ignored the specification?—A. I certainly did.

By Mr. Gutelius:

Q. That was the contractor's point of view?—A. We got a specification which did not cover the country at all, and you know just as well as I do, as an engineer, that it does not. The first year we were up here we had a chief engineer who would not say aye, yes, or no, and if we wanted to get this work done we had to pay for it, it does not make any difference whether it is Grand Trunk contracts or anybody else; we would have the whole work stripped of men, unless we could pay them wages.

Q. It was costing too much for the classification that the Transcontinental engineers were giving?—A. Yes.

Q. And you, as a representative of the G.T.P., assisted Mr. Swenson in getting that classification raised?—A. I do not think you should put it that way.

Q. Perhaps it is a little too strong?—A. Because that is not the fact. The contractors west had progressed further with their work.

Q. Never mind that——A. I do not want to be pinned down as doing something that was dishonest.

By Mr. Staunton:

Q. Oh, no, no. I would like to get your evidence in a concise way. I am directing your attention to the fact that the classification says that only such indurated clay and other material shall be classified as rock as cannot, in the judgment of the engineer, be ploughed with a ten-inch grading plough, behind a team of six good horses properly handled?—A. And I maintain that the condition of this clay at that time was that you could not put a team of six horses on to plough it.

Q. Why not?—A. You would simply mire your horses.

Q. It was too soft?—A. Yes, a good deal of it. We had rain and rain, and you could not put a team into it.

Q. Would you classify as loose rock material too soft to be ploughed?—A. I say the plough test has nothing to do with it, in my judgment, because you have a condition which does not obtain—

Q. Then in your action in classification, you ignored the plough test?—A. I certainly did. I hold it does not maintain in this country at all.

Q. And you valued it by the cost of getting the material out?—A. No, it was not common excavation, and we could not make it solid rock. There were some cases I would have been quite willing to classify as solid rock, because it was just as hard.

Q. You were guided by the cost of getting it out?—A. I would sooner put it, the difficulty of handling the material.

Q. How would it be more difficult than common excavation?—A. It takes more time.

Q. And costs more money?—A. Yes.

Q. Is that not the result?—A. Surely.

Q. He would not care about the time, if he was making money on it?—A. I say on account of the difficulty. It is the same thing; you can call it bread or cheese.

Q. Does it not all come back to the one place, that you were influenced by the cost to the contractor of getting out the material?—A. I do not think that you are right in putting it that way, because if you give us something that is impossible, your courts will not hold a man who has to do something impossible in law, and we were up against a condition of material here which was not covered by any clause of the specification, and is that any reason why we should say "We won't give him anything more" or put that down as the lowest?

Q. Why did you put it in as loose rock if it was not covered by the specification?—A. Why should we not put it in?

Q. You might put it in a class by itself?—A. We would have to go to Ottawa to get legislation.

Q. Why should you not put it in a classification by itself?—A. If the work had been done by the C.P.R.

Q. Do not argue. Should you not, as an engineer, put it in a class by itself?—A. We were not allowed to.

Q. If you had been allowed to, would you have put it in a class by itself?—A. Yes.

Q. It is not loose rock or common excavation within the meaning of the specification, in your opinion?—A. No, it is not.

Q. And you say that because there was no other way out of it, you put it in as loose rock?—A. Yes; some of it comes under that loose rock specification. There is a great deal of it you could not put a team on, and if you had put a team on, it would not have been in any condition that you could benefit in handling it.

Q. Because it was too soft?—A. Yes; you might plough a furrow of clay out, and lay it out, and then you have to get to work with your picks and shovels to break it, before you could handle it. Mr. Gutelius will probably understand that better than you, because he has been up against the same proportion.

Q. Could you tell me about how much of that material was classified as loose rock which was too soft to plough?—A. Oh, I could not tell you. I could not even arrive at a conclusion. It has covered three years now, and after our decision was reached we went on to something else, and it would be almost impossible to say.

Q. Could you tell me how much of that material could have been turned over by a plough?—A. I think a plough could have made a furrow through possibly fifty per cent of what we classified.

Q. As loose rock?—A. Yes, but it would be no advantage to the contractor or commission or anybody else, to have that furrow made.

By Mr. Gutelius:

Q. What started you on that trip with Mr. Swenson and Mr. Molesworth?—A. We went down there to look into the complaints that were coming in from that work.

Q. Who made these complaints?—A. Mr. Swenson.

Q. Direct to you?—A. Direct to me, and I fancy to Mr. Molesworth as well.

Q. Did you have any conference with Mr. Woods in connection with that?—A. I do not recollect that I did. It is possible that I did, though; it is possible that I told him that the standard of classification down there was entirely different to what it was on the older work.

Q. That the standard of classification was higher than the classification on which these boys were giving on the G.T.P. contract?—A. It was on part of the G.T.P. contract. There is about half of it on each district.

Q. The portion that you have been district engineer on includes more than the G.T.P. contract?—A. Yes, it includes 45 miles east of our contract and 200 miles west.

Q. Did you have occasion on either of the contracts east or west to increase the classification?—A. I think it was done in several instances further west.

Q. Do you know definitely?—A. I know it was in several instances, and on the same inspection trips that we raised it in some places we lowered it in others.

Q. In both the G.T.P. contract and on the neighboring contract?—A. Yes.

Q. Are the G.T.P. and Foley, Welch & Stewart satisfied with the classification they receive now, as far as you know?—A. As far as I know they are, though our books do not show any material encouragement for going into the contracting business.

By the Chairman:

Q. Is there anything you wish to state?—A. I do not know that there is. In all my consultations with the several district and inspecting engineers who have been here, I have always endeavored to give all contractors in the district the same consideration that was given to the Grand Trunk Pacific contract, and I am not conscious of ever asking for anything on this contract that was not already established, with the approval, I think I can say, of the engineers from top to bottom, including the chief engineer on other contracts.

Q. Has this road been kept at a uniform grade, .04 one way and .06 the other?—A. As far as my knowledge goes. All my information comes from the Transcontinental office. I saw their profiles.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION, EVIDENCE TAKEN IN TRANSCONTINENTAL OFFICES, OTTAWA, NOVEMBER 14th, 1912.)

H. A. Woods, sworn:

Examined by Mr. Gutelius:

Q. What is your official position with the Grand Trunk Pacific Railway?—A. Assistant chief engineer of the Grand Trunk Pacific.

Q. What is your official position in connection with the National Transcontinental Railway between Winnipeg and Moncton?—A. Well, I suppose it might be termed inspecting engineer—no particular title attached to it.

Q. Do you represent the Grand Trunk Pacific?—A. I represent the Grand Trunk Pacific in the work being done by the commission between those points.

Q. As provided in the various agreements and acts?—A. That is right, sir.

Q. When did you first undertake this work?—A. I came to the Grand Trunk Pacific from the Grand Trunk in January, 1905.

Q. That was prior to the undertaking of any work, or letting of contracts, on the National Transcontinental?—A. Yes.

Q. Did you have to do with the rates of grade established on the National Transcontinental by the commission?—A. Not directly.

Q. You are familiar with the book of instructions that was prepared by the commission, and issued over the signature of Mr. J. Butler?—A. I am.

Q. Were these instructions approved by your company?—A. They were not approved formally by the company, although the company made no particular objection, to my knowledge, against the instructions that were issued.

Q. You felt at liberty to criticize the construction of the railway, even though it was in accordance with these instructions?—A. I did, in several instances.

Q. In the matter of curvature, which is treated in Article 26 in these instructions, it says: "The maximum curve on a level shall not exceed six degrees." Do you not think that to issue an iron-clad instruction of this character for a railway that had not yet been surveyed was rather bold?—A. I think it was.

Q. Would you explain the reason why an iron-clad six degree curve is bold? —A. I think it is bold, for the reason that, in going through a country of such an extent as the country which this line traverses, there are many points where a curve with a shorter radius might be used to advantage.

Q. And not interfere with the efficiency of the railway?—A. Not seriously interfere with the efficiency of the railway; I would rather put it in that way.

Q. Would sharper curvature interfere at all with the haulage capacity of locomotives hauling freight trains?—A. If carried to an unreasonable extent, it would, but within reason, while it might detract from the speed of the trains, it would not detract from the haulage capacity.

Q. You are familiar with the term momentum or velocity grades?—A. Yes, sir.

Q. Were they used to any extent on the National Transcontinental Railway? —A. Not to any extent, no, sir. I want to say, in explanation of that, that the maximum grades and curvature were supposed to be fixed, and that engineers were not allowed to vary, or did not vary them.

By the Chairman:

Q. You are speaking of the Eastern division?—A. Yes.

By Mr. Gutelius:

Q. I notice in paragraph 85 of these instructions that "Resident engineers will not be allowed to make changes in grade or in alignment, but will promptly call their division engineer's attention to any possible change they consider beneficial." As representing the Grand Trunk Pacific, were you asked by the engineers of the National Transcontinental to pass upon any curvature sharper than six degrees?—A. I was not.

Q. You are familiar with the railway along the St. Maurice and the Millieu Rivers, are you not?—A. Yes.

By the Chairman:

Q. Referring to the degree of curvature adopted in that territory, it uniformly does not exceed six degrees; is that a fact?—A. Yes.

Q. Do you know whether there were any general instructions given by the commission that a six degree curve should not be exceeded?—A. I have not any positive knowledge. It is covered by the rules in the book of instructions that it shall not exceed a six degree curve.

Q. But that book of instructions was prepared before the railroad was surveyed?—A. Yes.

Q. Were there any modifications, to your knowledge, adopted in those instructions, after the commission became familiar with the country through which it was going?—A. I think that it is possible that trial surveys had been prepared before this book of instructions; trial surveys had been made, by which it became apparent that a low grade line could be established, before the book of instructions was issued. I think the preliminary surveys were made through this territory prior to this time.

Q. It appears from the first annual report of the Commissioners that the engineers who were sent out to survey this projected line between Moncton and Winnipeg were furnished with printed instructions for their guidance, and for that of the district engineers in charge of parties under them, giving full particulars as to their various duties; they were also instructed to adhere to grades not exceeding 0.4 per hundred adverse to eastbound, or 0.5 adverse to westbound traffic, though in regard to the last mentioned this has been changed to 0.6 per hundred in one or two exceptional cases. The maximum curvature was limited to four degrees. This is a quotation from page 4 of the report. You see from that that these instructions were given before the line was surveyed. In your judgment, was that a wise instruction to give?—A. I think it was a bold assertion that grades and curvature of those maximums could be found through a country which was largely a wilderness, without causing excessive cost.

Q. Without what?—A. Without making excessive cost in construction.

Q. Such instructions as these leave nothing in the discretion of the engineers, do they?—A. They do not.

Q. They must, if they follow their instructions, regardless of cost and regardless of conditions, find a road which will come up to those instructions?—A. They must.

Q. Did you ever know of such instructions being given to engineers, allowing them no latitude whatever?—A. Not positive instructions. Instructions were often given to accomplish certain results, if practicable, but not positive.

Q. So that, if they followed those instructions, they would not bring to the Commission any information upon which they might deem it advisable to change the grade or the curvature?—A. I would not say that, because the running of a line through such a country as that, an engineer has to use his judgment as to the better local conditions, and a line once established would certainly give the chief engineer information on which he could base or change his instructions, if, in his judgment, it was deemed best to do so.

Q. I understand you to mean that the line was so long and so expensive that he would deem it advisable to send out another party to explore another line; is that what you mean?—A. That is not altogether what I mean. What I mean is that the information brought in by his engineers as to the topography of the country might lead him to say "With this information we can reduce the cost by heavier grades and still have a practical road."

Q. Then I understand you, in your opinion, when the Commission obtained information from the engineers sent out to locate such a line as this, that they could realize then the enormous expense that this road would entail to build it, as laid down in the preliminary instructions?—A. Yes; and on the strength of those reports undoubtedly the change from five-tenths to six-tenths was embodied in their instructions.

By Mr. Gutelius:

Q. It is the fact that, as soon as those surveys were made and passed upon by the chief engineer, that an estimate of the cost of this railway could have intelligently been made?—A. I think it could, yes, sir.

Q. Can you give us an idea as to the date, from information placed before you officially, that the Commission might have learned how expensive a railway their original instructions involved?—A. I think that, for a part of the line, that information was known to the chief engineer during 1905, and other parts of the line it was not known for perhaps a year or two later.

Q. Can you recall a time, roughly, when you first got the idea that this was going to be so expensive a railway?—A. Well, I think my attention was called to it more particularly in 1907, and prior to that time, which was before the final location was completed.

Q. Do you care, as an engineer, to defend the instructions that steel bridges and steel viaducts should be constructed on tangents?—A. I do not, in all cases.

Q. Your letter in connection with making the Salmon River viaduct all tangent was not based on your personal judgment?—A. Not altogether, no, sir.

Q. You are familiar with the specifications?—A. I am.

Q. Were you concerned in their preparation and adoption?—A. I had to do with the making of those specifications, as one representative of the company, and they were accepted by our company.

Q. I find that the engineers interpreting these instructions are classifying as solid rock material composed of loose rock and fragments less than a cubic yard; is that in conformance with your understanding of this specification?—A. It is not in conformance with the original specification as made, and as only made through an addition to these specifications, using the term "assembled rock," which was proposed by Chief Engineer Lumsden, and accepted by the Grand Trunk Pacific after an examination of the blue print proposed by Mr. Lumsden, and believing that it worked no injury to the Commission or the company by its adoption, and what we believed to be Mr. Lumsden's and our own interpretation of the same.

Q. Will you answer my question?—(Question read)—A. It certainly is not, unless such material is cemented, so as to require blasting.

Q. So as to require blasting to separate one fragment of rock from another?—A. Yes.

By the Chairman:

Q. You agree, then, that the specification of solid rock excavation, paragraph 34, which reads: "Solid rock excavation will include all rock found in ledges, or masses of more than one cubic yard, which, in the judgment of the engineer, may be best removed by blasting," will not cover anything which is not rock?—A. Yes, that specification has particularly to do with solid rock. It defines what solid rock is. I designed that clause.

Q. If the specification was not modified by the blue print, or by some subsequent amendment, no material which was not rock could be included under that clause?—A. I won't say that.

Q. That specification ought to convey to your mind, as an engineer, my meaning, should it not?—A. It certainly does.

Q. And is it not plain that those words were not intended to cover anything more than rock?—A. All it covered was solid rock.

Q. If you adhered strictly to that instruction, could you classify anything that was not rock under that heading?—A. Possibly not, under the strict acceptation of that specification.

Q. I simply want you to tell me now, if I gave you that into your hands, and told you to live up to it literally, could you classify anything under it that was not rock?—A. No, sir.

Q. You say there was a subsequent modification of that specification in the blue print issued by Mr. Lumsden—is that right?—A. Yes, sir.

Q. Do you know, as a matter of fact, that for some time before that blue print was issued, particularly in District B, they were commonly classifying as solid rock what is now known as assembled rock?—A. Yes, sir.

Q. And did you, for the Grand Trunk, write a letter of protest against that?—A. I did.

Q. In your letter to Mr. Lumsden, dated October 7, 1907, you say:—

"During the past week we passed over portions of the work from Batiscan River west for fifteen or twenty miles, and, later, from mile 115 to mile 132"; that is in District B, west of Quebec, is it not?—A. Yes.

Q. The letter continues:—

"With reference to the former portion, the classification was given in distances of from three to five miles, and, as we did not have total quantities of graduation, and could not judge with reference to any particular cutting, although percentages over entire distance seemed excessively heavy in both loose and solid rock. With the latter portion, we had detailed percentages for each cut, and we are greatly surprised at the allowances made for solid and loose rock. In nearly every case where the cuttings were not entirely all ledge, the estimate given for solid rock is double, or more than double, what it should be. In fact, the specifications have been entirely ignored and an excessive allowance made."

Q. Were those statements, in your opinion, fair criticisms of what you saw?—A. They were at that time; they were my opinion at that time.

Q. You formed that opinion from a personal inspection of the work?—A. Yes.

Q. Looking at the specification, paragraph 34, to which I have already referred, you will see they use the word "masses" there. Do you consider that that word "masses" was intended to cover any material which was not rock?—A. It was not, when that specification was written.

Q. Do you know, as a matter of fact, at the time you made your inspection referred to in your letter of October 7th, that great masses of material composed of sand and clay, and similar fragments of rock, were being classified as solid rock, and that it was justified by contending that the word "masses" included more than rock?—A. I do not think it was justified by that.

Q. They justified it by that, did they not?—A. I think that interpretation was what allowed it to be returned in that way, but I think the interpretation was entirely false. That particular work to which I had reference there was a very difficult piece of work, and all kinds of material were found there, and there were some of the cuts that were simply boulders, with a very little sand intermingled with it, you might say almost wholly boulders, and, under a liberal interpretation of the specification, those boulders might have been termed solid rock, although not of a full yard capacity, and I think that is the usual acceptance of engineers, not to confine themselves to an exact measurement per cubic yard.

By Mr. Gutelius:

Q. But they were boulders that would be half a yard or more?—A. Yes.

By the Chairman:

Q. Do you not know that there were great sand hills there which were classified as solid rock?—A. There was one particular cut, and one of the largest cuts there, on which I based this letter, which was at that time very, very largely sand, which afterwards developed, as they went down, into a very much harder material. The top part of it was sand.

Q. I failed to find personally, in all my inspection from the north bank of the St. Lawrence to Parent, any cementing material; did you find any?—A. Oh, yes.

Q. Where?—A. We found it before we reached La Tuque. The first cut east of La Tuque I think was a cemented material. I saw what I would consider cemented material when I was at different places.

Q. Tell me what you mean by cementing material?—A. I mean boulders and clay, or other material, that are lying in a compact mass, and so that you cannot separate them without the use of explosives; that is what I mean by cementing material. I do not care whether they are stones the size of your fist, or half a yard.

Q. Did you ever see anything like that up there?—(Showing specimen).—A. That is an extreme case.

Q. You call that cemented together?—A. Yes, without a doubt. You do not find that in large quantities. I have handled thousands of yards which I have classified as cemented material.

Q. I am asking you what your cementing material is. Tell me what it is. Is it sand?—A. When you are working with a fall and face in a cut, and here is material which clings together, and it won't be separated you have got to blast it, and probably there will be stones in there half a yard, and others of a very much smaller dimension, and there may be some more than a yard, but you have to use explosives to get that apart.

Q. If I stick a pick in, the fire will fly, but it won't come out?—A. I do not know about the fire, but it won't come out. It was found on that work, because I saw it repeatedly, but it did not cover all the work by any means.

Q. There are not large quantities of it?—A. There is lots of material you cannot separate the earth from the rock.

Q. Could you locate any of it?—A. I cannot locate it by the mileage, but it was in the bottom of the big cut that was taken out by Macdonell, of Macdonell & O'Brien's work and on which the top of it was sand.

By Mr. Gutelius:

Q. Yellow sand?—A. Yes; it was worked with scrapers, without ploughing. and as we went down into that we found ledges of solid rock, and others that cemented material, a mixed material, with stones the size of that cuspidor to half a yard.

By the Chairman:

Q. That is what you mean?—A. Yes.

Q. And whatever of that has been taken out on the line you would have classified as assembled rock?—A. Yes, I would classify it as solid rock.

Q. You would classify it as solid rock, under the heading of solid rock?—A. Yes.

Q. You would not classify the cemented gravel as solid rock under this specification?—A. I certainly would, if it was in large quantities. You would have to classify that material produced as solid rock.

Q. But cemented gravel comes under section 35?—A. Yes, as loose rock. Well, there are different classes of cemented gravel. Cemented gravel very frequently lies in courses, from one to four feet in thickness, and it can be ploughed with one of those grading ploughs sometimes, and other times it cannot, but it cannot be ploughed continuously, as clay can be ploughed.

Q. If it can be ploughed, it is common?—A. No, I want to draw the line, that a plough test means continuous ploughing; it does not mean you can plough the length of the room and stop, and wait, and then go on; it means continuous ploughing.

Q. Why did you not say so in the specification?—A. It was not necessary. I worked under that same specification a great number of years without any question between the contractor and the company. Sometimes the contractor asked for more than he would get.

Q. You say there was an amendment made to the specification?—A. Yes, which I think had the approval of the Government.

Q. You think that amendment or blue print issued by Mr. Lumsden, dated January 7, 1908, widened the definition of solid rock, so as to include material which had theretofore not been classifiable, if I may use that word, as solid rock? —A. I think so, yes.

Q. To what part of the blue print do you refer as having that effect?—A. I refer to where it shows a stone of smaller dimensions. I refer to number 5; it shows smaller fragments of rock, "Rock in masses of more than one cubic yard, which, in the judgment of the engineer, can be best removed by blasting." I mean that that is not solid rock in the ordinary acceptance of solid rock, but it was decided to term it solid rock, because it is as difficult to move as solid rock.

Q. I do not think you have read that carefully, because it does not say "rock in masses"?—A. It does.

Q. Pardon me, it does not; it says "rock in masses," just exactly as the original specification said. It does not say "rocks in masses" but rock in masses, and the original specification said rock excavation. I have tried to find out how this modified the specification, and I have been unable to do so personally?—A. Well, it probably grew, if you will allow me to say so, out of the interpretation placed upon Article 35 by the engineers, in which masses, although not solid, not ledge, might be termed solid rock.

By Mr. Gutelius:

Q. You only intended, though, to legalize what you would have, in your judgment, called solid rock occurring in these large boulders?—A. Yes, sir, I would have called that solid rock under the original specification, with a liberal interpretation of that specification.

Q. These contracts had already been let prior to the issuance of this blue print?—A. Yes, sir.

Q. As an engineer, does it not strike you that the blue print gave the contractors an advantage that they did not possess in the original contract?—A. Under my interpretation of it, it would not. Under a different interpretation, it might.

Q. Under the interpretation that you found in your official capacity was based upon this clause, did it not give the contractor an advantage that the original contract did not anticipate?—A. I think it might have done so.

Q. Can you not say so positively?—A. Well, I would not be willing to say that, because under my interpretation it made no difference.

Q. But from your experience with the engineers in the field, your knowledge of the cuts, and your knowledge of the estimates and classification, did they not, under this modified instruction, give the contractors more solid rock than you would have given them under your interpretation of the original contract?—A. I think they did.

Q. The greater part of the discussion in connection with assembled rock occurred on District 2, on that portion of the line which might have been eliminated if the sixty-five hundredths line had been constructed?—A. Yes, the greater part.

Q. Are you familiar with the proposal to introduce a point sixty-five pusher grade from La Tuque yard east, instead of four-tenths, which was constructed? —A. Yes I am, fully. My recommendation was that it should be in preference to the four-tenths at this point.

Q. Why?—A. Simply because, with the location, it was particularly adapted for a pusher grade, although a point sixty-five grade could hardly be termed a pusher grade, but it was where a divisional terminal might have been,

or would have been established, and the engine was already there, ready as a helper, to be called upon to push trains out of the yard. Local or passenger trains need no assistance. It was only the eastbound fully loaded trains needed it.

Q. Do you remember how much money might have been saved in construction?—A. I believe it was estimated at $350,000, but I do not think it was anything like approaching what the difference was actually found to be.

Q. In any event, if the material on the four-tenths line had developed into common excavation and loose rock, as was anticipated, it would have been the economical thing to build that sixty-five hundredths grade?—A. I think it would.

Q. And the introduction now of assembled rock has made a greater reason why it should be built?—A. Yes, although I believe, in the first instance, that two additional tunnels were proposed, which was not afterwards found necessary.

Q. But that is more than equalized by this assembled rock?—A. Yes.

Q. You mentioned a moment ago that a sixty-five hundredths was not in reality a pusher grade; why did you make that remark?—A. A pusher grade is generally considered a one-point one against a four-tenths.

Q. Have you figured what a pusher grade against a six-tenths should be?—A. I have not. It is about a one point four or five.

Q. We find that a pusher grade was constructed from St. Francis River westbound for ten or twelve miles on a one point one?—A. Yes, sir.

Q. Do you remember the long fill, just after you leave the St. Francis River bridge?—A. Yes.

Q. If a steeper grade than the one point one, say a one point three or four, had been used for those ten miles, would it have affected the cost of that last mile at the foot of the hill?—A. It would have reduced the cost of that heavy embankment approaching the river.

Q. And that is the information which we can get from the local engineers?—A. Yes.

Q. Would the railway, generally speaking, be as efficient if they had put in a steeper grade, up to say one point three, on that whole side, using the same height crossing the river and the same height crossing the divide?—A. That is a question which I have never considered, but I presume it might have been.

Q. It requires the same amount of power to raise the train up the same height, whether it goes on a one point one or a one point three?—A. Yes.

Q. So that, theoretically, it would have been as efficient?—A. Yes.

Q. Who designed the engine houses, coal shutes, ice houses and freight sheds?—A. They were generally designed in the office of the chief engineer of the Grand Trunk Pacific.

Q. And sent to the National Transcontinental?—A. Sent to the National Transcontinental engineers.

Q. Did the Grand Trunk Pacific insist on eighty pound rails being laid in sidings and yards?—A. I do not think they ever insisted upon its being done. The proposition was made to them that it might be better to use the same weight of rails throughout, thus avoiding the difference in the frogs, switches, and so forth, and it was accepted by the Grand Trunk.

Q. Being a good proposition to the operating company, you accepted it?—A. Yes.

Q. Did the Grand Trunk Pacific have anything to do, so far as you know, with the elimination of wooden trestles on the Transcontinental Railway?—A. They did not.

Q. Your company would not have objected to the construction of wooden bridges, as is the usual practice on other new railways in Canada and the United States?—A. They would not; they even recommended it in some instances.

Q. There are advantages in the construction of wooden bridges on a new railway through a new country, are there not?—A. There are, in my judgment.

Q. Will you tell us, in your own language, some of the advantages that occur to you?—A. Well, in many instances, the exact amount of water space is not as well known as it is after the road has been constructed for a series of years, and the length of structures can be increased or diminished, when permanent work is placed in, and in that way a considerable saving is often made. There are other places—and I speak now particularly with regard to the clay belt—where we practically had no foundation, and where it has been found that a very considerable saving could have been made by using temporary structures, or what might be termed permanent trestles.

Q. Permanent wooden trestles?—A. Yes. I think this is generally done in the construction of lines of any magnitude, aside, possibly, from Government work here in Canada.

Q. What effect would the construction of wooden bridges have had in the matter of wash-outs, slides and subsidences?—A. I think it would have eliminated many of them.

Q. What do you say to the objection to the construction of wooden trestles in the matter of the fire risk?—A. There is a very considerable risk in using wooden trestles through timbered country, but that can be eliminated to a great extent by proper care in keeping the right of way clear of everything inflammable. There always will be a certain amount of risk in wooden trestles, unless you go to the expense of ballast floors, which have been constructed on pile structure in many places, where permanent work is never considered practicable.

Q. That is, if the vegetable matter had been skinned off the right of way to a distance, varying with the amount of combustible matter there is in the vicinity, and ballast floors used, there would be little danger of fire?—A. Comparatively.

Q. Would the use of wooden bridges influence the locating engineer in locating his line through the adjoining cuttings in the matter of balancing cuts and fills?—A. I think it would probably, in the balancing of his quantities.

Q. If he knew he did not have to balance quantities, he would reduce his cuts very materially?—A. Yes.

Q. Do you think the use of wooden trestles would have reduced the time by one season in the construction of this railway?—A. Well, speaking of the eastern division, I am hardly able to say, from the fact that the material for the structures would have to be brought from long distances. On our western division, where we made use of it, there is no doubt it would have hastened it, but where we have to get our material from British Columbia, it could not be hauled to the location of the bridges erected before the track reached there; in other words, we would have to wait till the track was to a certain point before the material for the structure could be hauled to the point of erection, and, consequently, it is difficult to say. Of course in many instances, where it was near other railways, the work could be advanced very considerably by using those structures.

Q. So that it is fair to say that the completion of the railway would have been expedited to a certain extent?—A. Yes.

Q. You do not feel like making an estimate as to how much?—A. No.

Q. Did you pass officially the various yard plans?—A. Yes. The plans were presented in conformity with the plans of the Grand Trunk Pacific, modified to meet the existing conditions of the different yards. Understand, on the prairie a yard could be laid out without any additional cost, or made very large for future expansions. In certain locations on the eastern division it was impracticable to do it, and even to get a reasonable yard you have to go to a very large expense. I guess they are pretty much all that way.

Q. Was it not unfortunate that the first yards were designed for prairie?—A. Probably it might have been.

Q. The criticism that occurred to me was that a large amount of yard grading might have been saved, if the yard designer had known that these tracks which ramified the outskirts of the yard had come through heavy cuttings or high fills?—A. Yes.

Q. Don't you think there is something in that criticism?—A. Yes, that is probably so. Take the ward at Edmundston; now, we did not intend to make Edmundston a point at all; it was rather forced upon the Commission against our judgment, but it was placed there, and required a very large amount of work, and I do not see very well how you could modify that yard. You might, of course, in some particulars, but you would not eliminate much of the work.

Q. I was thinking particularly of Graham?—A. Yes.

Q. If the same yard tracks at Graham had been placed with thirteen foot centres, without any large area between tracks, a considerable amount of money might have been saved?—A. Yes.

Q. And you explain that, as I understand, because Graham yard was designed after prairie yards, where grading cut no figure?—A. Yes, that is my explanation of that.

Q. What do you say about the double track between Lake Superior Junction and Graham yard, as a matter of economy in railway construction?—A. I never thought it necessary. It may not have been such bad economy to construct that, as that bridge had to be constructed there, and there is a possibility that in the future that will be a pretty busy line, and a second track leading out of a divisional yard, as you know from your operations as superintendent, is a very advantageous thing to have.

Q. But in the interests of economy, you would not have built it?—A. Not at this time.

By the Chairman:

Q. It is a luxury?—A. Yes.

By Mr. Gutelius:

Q. And is that not true of the double track from Cap Rouge to St. Foye?—A. Yes. I think that was made there for a connection with the Canadian Northern. I do not know what else. That was very expensive work from Cap Rouge to St. Foye.

Q. And you would not have passed it, if you had the whole thing?—A. No. That is a very expensive work.

Q. Then across the river, you would have eliminated that St. Chrysostome cut by running——A. Yes; in other words, I would have occupied 1,500 or 1,600 feet of track already constructed by the Quebec Bridge company, and reduced the cutting, possibly, by the increased grade, probably to one-fourth of what it was.

(TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION. MEETING AT OTTAWA, TUESDAY, APRIL 21st, 1913.)

Present: G. Lynch-Staunton, K.C., *Chairman;* F. P. Gutelius, C.E.

H. A. Woods, Assistant Chief Engineer of the Grand Trunk Pacific Railway Company, recalled and sworn:

By Mr. Gutelius:

Q. Mr. Woods, were you present at a meeting in Quebec where the price for train-filled and temporary trestles was agreed upon with the contractors for contracts 9 and 10?—A. I was present when that question was discussed.

Q. That meeting took place on the 14th December, 1906?—A. So far as I remember, it did.

Q. Who was present at that meeting?—A. The chief engineer, Mr. Lumsden, Chairman Parent, A. R. McDonell, M. J. O'Brien, and M. P. and J. T. Davis and Mr. Armstrong and myself were there.

Q. At that time, a price of 55 cents was agreed upon for train fill and temporary trestles?—A. Yes, sir.

Q. What have you to say about that price?—A. I hardly think that that same price covered all sections.

Q. I said sections 9 and 10?—A. That is right.

Q. What have you to say about 55 cents a yard, as being a proper price?—A. I thought at that time 55 cents was too high. I first thought 45 cents ought to cover it, but after taking into consideration the cost of the trestles and the heavy embankment, I thought 50 cents would be a very liberal price.

Q. That is the price you quoted for the Grand Trunk Pacific later?—A. Yes.

Q. Did it occur to you at that time that when this price was being asked, that it would eliminate the use of standard timber trestles on these contracts?—A. No, I did not consider that it would. I considered that these temporary trestles and train filling were not adjacent to streams or covering soft yielding foundations, but for ordinary grades where it was expected you would either have permanent works or solid roadbed.

Q. In the light of subsequent events, however, it did sound the death knell for wooden trestles on these contracts did it not?—A. Well, apparently it did, but not necessarily. I considered there were many places where a permanent trestle might have been placed to rather better advantage and more economically than attempting to build embankments or steel structures and particularly on the St. Maurice River, where there are washouts in one or two of the long heavy embankments and where there was soft ground; I thought then it was much better to built trestles because of the fact that this agreement had been made. The question was settled for the district engineers I suppose and the contractors.

Q. And you as inspecting engineer were out of it, because you agreed to the 55 cent price?—A. Because our proposition to build these, where we thought it was necessary, and afterwards to build at the established maximum rate was thrown out, and not considered by the Commission, do you catch me?

Q. Were you familiar with the original surveys that were made by the Grand Trunk Pacific for the line from Winnipeg to North Bay?—A. Which surveys?

Q. Surveys made by the Grand Trunk Pacific?—A. Yes, sir.

Q. Was not a portion of these surveys used by the Transcontinental Railway itself?—A. Yes, sir, I suppose they were used. The line from North Bay, I think, had reached the zone which would be covered by the Transcontinental and it was paid for by the Grand Trunk, and after reaching a point where it might be made use of by the Transcontinental Railway Commission, they took over the surveys and our notes and paid for the same to the Grand Trunk Pacific.

Q. Do you know if any portion of the Transcontinental was built on the line or within a few hundred feet of the line surveyed by the Grand Trunk Pacific?—A. I cannot say it was, I cannot answer that question, although I assume it was. Perhaps not a few hundred feet, but within a few miles. The surveys determined the character of the country.

By Mr. Staunton:

Q. You are not familiar with the location of these surveys?—A. I am not familiar with the actual location of the first survey. I know the Grand Trunk Pacific made surveys in a direction away north of the line; I am speaking now of Lake Superior Junction; they covered considerable territory both north and south, but they had an extreme north line which was not used at all. It was not feasible as not being a direct line.

Q. If I should say to you I had knowledge and there was not a foot of the Grand Trunk Pacific original surveys used in the construction of the Transcontinental, within a mile, you would not contradict me?—A. Oh, no, I would not. At that time it was not certain where the Transcontinental would go. It was uncertain whether it would go north or south of Lake Abitibi, surveys were being made on both sides.

Q. In the matter of the crossing at Coal Creek and River du Sud, where various extensive fills and masonry structures were built, did you or your engineers protest against the extravagant methods used at these two points?—A. I cannot say that any protest was made. In fact, I am positive there was none made. The change from the original plan at Coal Creek was made under the representation by the Transcontinental Commission that under the agreement for filling that and building an arch culvert, works would cost the Commission no more, and it was agreed to by our general manager, naturally preferring a solid road to even a steel structure.

Q. But when it was found that the material in the vicinity was not suitable to make this fill, at the price of 50 cents, and this fill was being made of solid rock, did your representatives protest against this large amount of solid rock being used?—A. They did not, for the reason that representations were made by the district engineer that that clay material adjacent to that was of such a nature that the embankment would not stand, that it did slump out, that several thousand yards went away, that there was no material adjacent to the line or no material other than the old Intercolonial Railway ballast pit, some thirty-five miles away; the cost of overhauling being such, and under the agreement which had been made between the district engineer and the chief engineer for rock borrow, on other sections in which this rock borrow instead of being paid for at $1.50 was paid for at about $1.10 1-4, as I remember, and that embankment would be better; that if the material could not be got at less price no objection would be made.

Q. And for these reasons no objection was made?—A. Yes, that occurred to one or two sections on District A. That $1.10 1-4 figured out by Mr. Foss, in figuring that the cost of the material, the cost of the overhaul of any kind of material, would altogether amount to an equal sum in price, and the rock for that purpose was better than the other material.

By Mr. Gutelius:

Q. What I am criticising you for is, that when you found that the cheaper material was not suitable, that you and your inspecting engineers, on account of your experience, did not suggest the construction of a wooden trestle until such time as it could be filled by the operating company. In the light of the fact that this fill has now cost $420,000, would it not have been good engineering to have erected a wooden trestle?—A. It is a case of backsight. We know very much better now what could have been done than we did at that time. The point was this: that the work was commenced, a trestle was put across there, the contractor commenced working, supposing he had material of a nature which would allow him to complete the embankment there. He only found three or four feet at most of clay before he struck rock, and the whole country adjacent is rock underlying three or four feet of clay. He did not make a clean shovel proposition.

By Mr. Staunton:

Q. Do you mean to say they started to make the fill and did not look beforehand if they had material more than three feet deep?—A. Yes.

Q. Did they want to put rock in there?—A. They had no idea there was any rock in that country.

Q. Why did they not think of that beforehand?—A. My dear sir, the surveys did not show any solid rock on that section. There were not any soundings

taken; there was not any put into the original estimates; these original estimates were not worth a continental. I have always claimed that to Mr. Lumsden from the first, and Mr. Lumsden said it did not make any difference.

Q. Were there no cuts in that vicinity?—A. There was a cut to the westward.

Q. Did they see the rock when they made the cut?—A. They did not make the cut.

Q. Were there any cuts made before?—A. No, we built a temporary line for them, six miles, to get the machinery out; we paid the contractor $25,000 for that.

Q. You had to get through that other fellow's contract?—A. Yes, that was the trouble with the country to get through originally; the contractors never went through that country.

Q. I cannot conceive of contractors or of railway builders of any experience, or of engineers, going into a country and undertaking to make a fill of clay, and not discovering until after they had put up the wooden trestles that there was only three feet of clay in that country, can you?—A. It looks strange now.

Q. Would it not look strange to you in any shape?—A. Look at the conditions under which all these contracts were taken.

Q. When he got on the ground, if I understand you correctly, the contractor erected a temporary wooden trestle?—A. For a small engine.

Q. And before he erected that trestle he did not discover that there were only three feet of soil on the rock?—A. My dear sir, there were acres cleared on the west end of that bridge, a high bank right west of the structure, and on a part of it there was no growth, it was a sandy loam on top, and, no rock being estimated, the contractor did not look for it.

Q. How far would he have to go down to get foundation for his timber trestle, he would not set it on a sandy soil?—A. Yes, he would; but he probably used sub-sills.

Q. Could he help coming on rock that was only three or four feet down when he was building his trestle?—A. If he did he would not make that agreement.

By Mr. Gutelius:

Q. They evidently discovered it in the first steam shovel cut?—A. Yes, I was there myself before work was done.

By Mr. Staunton:

Q. Do you put the blame on the Commission for that proposition?—A. I say we agreed to the proposition.

Q. Do you put the blame on the Commission for not having ascertained the conditions around there before they made this mess of the Coal Creek proposition?—A. I would not say whether the blame was there or not, the same rule would apply to all the work, there were no soundings taken.

Q. If you were chief engineer on that road and you had got into this scrape, would you not think it was because the proper precautions were not taken to ascertain the conditions?—A. Personally, I should have lengthened the steel trestles. I should not have attempted to make a fill, but when it was brought up to our manager that that fill could be made, at no greater cost than the original plan for a steel viaduct 1,100 feet long, which I always considered should have been lengthened 500 feet at least.

Q. I understand from you that the Commission represented that it could be filled with ordinary material, clay, is this right?—A. They assumed the earth filling in the excavation at $1.30 a yard.

Q. And that the material was at hand for that purpose?—A. Yes, sir.

Q. Before an engineer makes a statement like that is it not his business to look below the surface of the ground and see what he has to expect there?—A. Practically speaking, yes.

Q. Is it not absolutely his business?—A. It was not in this case or in many others.

Q. Has a man any justification to assume that if there is clay on top it will continue down below in any part of the country?—A. The assumption was made.

Q. Is it not a reckless assumption?—A. We know now that it was.

Q. Would you do it tomorrow?—A. Oh no, I have learned considerable since I have been on the Grand Trunk Pacific and I had been engineering a good many years before I came there; in fact all my life I have been on public works.

Q. That is the point, I asked you if with your years of experience you would not see what the material was before you bid on it?—A. You naturally would, and the contractor went and looked at that.

Q. The contractor knew what this was?—A. He knew the same as the engineer knew.

Q. You say the engineers, when they made this report, did not know what they were talking about. They made a report of which the Grand Trunk Pacific accepted, and they did not know what they were talking about, is that right?—A. As later ascertained, yes.

Q. Not as later ascertained at all?—A. I do not want to throw discredit on the engineers any more than was necessary, because as was later ascertained they did not know what they were talking about. I would not throw discredit on the engineers in that particular instance.

Q. You have to throw the credit or the discredit where it belongs; somebody did not know what he was talking about; it was all guess?—A. Had they waited and taken the necessary borings, which you say could have been done, they would not have commenced that work for years.

Q. Had they taken the borings for three feet they would have done it in half a day?—A. They would not take any borings for three feet.

Q. They could have dug it out with a shovel?—A. As afterwards ascertained, yes.

Q. At this Coal Creek there was a contemplated expenditure for fill of $400,000 or $500,000?—A. No.

Q. What was it?—A. About $200,000.

Q. Well we will put it at $200,000; there was a contemplated expenditure of $200,000, if you wish, for the fill at Coal Creek, the engineers were on the ground, and the Grand Trunk Pacific was on the ground. Now then you say that none of them ascertained that there was only a layer of three feet of sand and clay over the rock, and that they did not ascertain that fact until they had built the trestle; was it not somebody's duty to ascertain that fact? Before they made the contract or the change?—A. I have answered that question before: I say yes, in the light of subsequent events; they did not know what they were talking about in the light of subsequent events. There was nothing to indicate rocks in the stream itself in that creek on either side in the immediate vicinity.

Q. As an engineer if you did not see any indications of rock in the vicinity, you do not look for it?—A. Ordinarily we do.

Q. But when the Government is paying for it, they do not look for it?—A. It is not that.

Q. That is what it seems to me, I do not know that I have met anything like it in my experience before?—A. There was so much money to be expended there anyway, and the proposition was, could it be done in any way that would give us better results, because we all know that a solid road bed is better than a steel structure, and that is why the change was made.

By Mr. Gutelius:

Q. When it was discovered that this railway was costing more than originally contemplated in the interests of economy, and having in mind the possibility of improving the gradients and curvature, would you not, Mr. Woods, as an engineer, have introduced the velocity grades and sharper curvature, on the more expensive portions of this railway?—A. Had I been engineer for the company, I would undoubtedly have made suggestions of that nature, but I may go further. I would first cut out that line between Quebec and Moncton, which I always thought was unnecessary, and a very expensive proposition. I should have considered that a greater saving that any small reduction which might be made by increased curvature or a larger reduction by momentum grades.

By Mr. Staunton:

Q. You cannot see any commercial use for that portion of the railway east of Quebec?—A. There will be a certain commercial use by opening up a certain country, but nothing in comparison with the cost of it. That was a fixed thing which we looked upon as having been fixed politically, and that our company could not change.

Q. You had nothing to do with that?—A. Nothing.

Q. You say that was a matter of the policy of the Government?—A. Yes.

By Mr. Gutelius:

Q. The idea of abandoning the construction of the line east of Quebec, after you learned how expensive it was going to be, was it ever discussed between the officers of the Grand Trunk Pacific Company?—A. And the Commission.

Q. I want you to tell me, first, was it discussed between the officers of the Grand Trunk Pacific Company?—A. I distinctly remember a conversation I had with President Hays on that subject, in which I laid my views before him.

Q. What were your views?—A. That the cost of that line was entirely out of proportion to any results to be had by the construction and operation of it. His reply was that it was a point fixed by the Government and that he never was in favor it, but he saw no way to change it.

By Mr. Staunton:

Q. If the Transcontinental Railway Commission had endeavored to make arrangements to enter different cities over other railroad tracks and have common terminals in different cities and towns, that would have saved a great deal of money?—A. Yes.

Q. Would it not have been the part of common prudence to have joined terminals with other railways, at least for some years, until they found what sort of traffic was going to develop on this railway?—A. There was little chance for joint terminals.

Q. I mean if they were obtainable and practicable. Take Moncton, for instance, would it not have been the part of prudence to have joined terminals with the Government Intercolonial Railway at Moncton?—A. It was always expected there would be a joint terminal there in the beginning.

Q. As a matter of business there should have been?—A. Probably there should have been.

Q. They would have saved a lot of money and instead of the Government owning two terminals at Moncton they could quite easily have got along with one for the Intercolonial and the Transcontinental?—A. Yes, if the Grand Trunk Pacific had known that there might not be a change in the Intercolonial; they had no assurance of that.

Q. But you could build terminals at any time?—A. Yes.

Q. If the Grand Trunk Pacific had owned the Intercolonial they would never have thought of constructing another road, to have separate terminals?—A. Surely not.

Q. The Government owned the two roads and they should have followed out that policy, should they not?—A. They possibly should. But when you come to an established policy of the Government, we had nothing to do with that.

Q. I am not talking about the Government policy, I am talking about the railroads and as a business proposition?—A. Yes.

Q. And when you come to Quebec, why should not that road come in on the Intercolonial at Levis and pass on the ferry to Quebec?—A. Because the Quebec bridge was under construction before this agrement was made and that brought the line where it was finally located.

Q. Speaking from an engineering point of view, what do you think?—A. I have told you before that I considered the line from Quebec east should not have been built.

Q. If you were building this road and you were going to Moncton, would not the natural thing have been to go into Quebec at the Louise basin?—A. No.

Q. Wait till you hear my question—would not the proper way have been for you to make an arrangement with the C. P. R. to have entered by the Louise basin, to cross by ferry, and to have gone out by the I. C. R. from Levis?—A. I want to answer that question by saying that it would have been, but that was not the policy of the Government.

Q. I am not asking you as to Government policy, I am asking you as an engineer and railway man?—A. I do not know what bearing that has on the case?

Q. Will you answer it?—A. No, I won't answer that question. I do not feel like answering that question; I do not feel that it has any bearing on the question under discussion between us; it is entirely foreign to the matter. I do not think it is a pertinent question to ask me. The location of the Transcontinental was placed where it was, adjacent to Quebec, simply because the Quebec bridge was under construction at the time this agreement was made. There was not any question then of crossing below, on the island, there was not any question of crossing above.

Q. Don't you know that before this road was built to either side of the river the Quebec bridge had fallen down?—A. Not before construction.

Q. How much was built?—A. We had been at work for two years. The Cap Rouge Viaduct, which cost $800,000 was built before the Quebec Bridge fell; the Chaudiere River Bridge, which cost three-quarters of a million dollars, was built before the Quebec Bridge fell down.

Q. Would you have taken that location if the Quebec Bridge was not there?—A. I do not know that we would. I think that was a distance of forty-five miles that should have been examined into, and I think a better point could be found. I do not know that by actual examination, but I have every reason to believe it might have been.

By Mr. Gutelius:

Q. River du Sud is east of the Quebec Bridge; it has a forty foot arch and fill, and the cost of the forty foot arch and fill was $246,551. Mr. Uniacke estimated a steel viaduct might have been constructed across that ravine at a cost of $91,391 or a saving of $155,000 in that one structure. Did you or your engineers make a study of the methods of crossing this river?—A. We did not.

Q. You simply accepted the design?—A. We accepted the design, supposing that that design had been worked out by the bridge engineer, Mr. Uniacke, and I personally did not know anything about it until the foundations of the arch were in and I visited the works and found a forty foot arch being constructed there, the foundation of which was considerably advanced at that time. I then asked if a steel structure might not have been built there more economically, but my recollection is that it was a large sand cut on the east in close proximity and on the west it was solid rock, and Mr. Doucet's explanation was that with that sand cut for filling no trestles would be necessary and that the simple price for common excavation would be paid; that it was equally as economical as a steel structure.

Q. Mr. Uniacke, in his estimates, states that 20,000 yards of common excavation would have been wasted in the event of the steel structure having been used at this point, which would have reduced the lump saving to $149,000 instead of $155,000?—A. There was a large cut there that would have been wasted. I never went into the figures and I merely recall that on the western side a fill would have to be made.

Q. If you had gone carefully into the figures at that time, don't you think in the light of what we all know now it would have paid to have abandoned the work you saw done at that arch?—A. It probably would. It would, however, require a long span. I presume Mr. Uniacke took that into consideration in his figures. That was a very rapid, turbulent stream. During construction the water came up from 15 feet to 20 feet in one night and washed away forms and caused some damage. It would require a considerable longer span to protect it.

Q. What have you to say about the crookedness of the stream and the size of the arch in connection with the possible height of water that may occur in this river, do you think there is sufficient waterway there now?—A. I think there is, protected as this is, both above and below by a retaining wall.

Q. And you are satisfied to accept that structure as good engineering, and if it washes out the expense of replacing it will be a maintenance expense and not one chargeable to deficiency in construction?—A. I would not agree to that.—You are tying me down there. But I have no fear of that washing out. I confess I am absolutely surprised at the cost of the arch.

By Mr. Staunton:

Q. It is an enormous arch?—A. Yes, but there is another forty foot arch a few miles from there and it only cost half as much.

By Mr. Gutelius:

Q. This is the arch where the 1 by 2 by 4 concrete was used?—A. Yes.

Q. Where would you construct the right of way fencing on a railway of this character?—A. Through the settled country; through the unsettled country where the farmer settlers were coming in, simply covering their farms.

Q. You would only protect against cattle where?—A. In civilization.

Q. Would you expend any considerable amount of money for the sole purpose of draining borrow pits in that north country?—A. Not for draining borrow pits but for draining the country, yes.

By Mr. Staunton:

Q. What has the railroad to do with draining the country?—A. Where you have the solid road, that is in danger from water all the time, you would drain the country, I mean draining the country passed over by the railway.

By Mr. Gutelius:

Q. An undertaking was entered into, between the Commissioners and the Grand Trunk Pacific, whereby the Commissioners are utilizing eleven miles at the west end of the Lake Superior Branch. The Commissioners gave the Grand Trunk Pacific actual cost for all the work that has been done on these eleven miles. You are familiar with this contract, are you not?—A. Yes sir.

Q. In deviating the main line so as to obviate the necessity for duplicating these eleven miles, the Commissioners lengthened the main line of the Transcontinental, one and four-tenths miles, is that right?—A. Probably it is about right, I thought it was less than that, but I won't be sure. I know the distance was about that.

Q. We find in the estimates that the shorter line could have been constructed for $197,000 less than was expended on the eleven miles taken over from the Grand Trunk Pacific, that is, less than the estimated cost of the eleven miles. The point I wish to make is, that in making this deal the Commissioners should have received value from the Grand Trunk Pacific for the $197,000, would that have been an unreasonable demand on the part of the Commissioners?—A. I certainly think it would be, because you have to know the value or the cost of the eleven and a half miles, you have as a matter of fact the known cost of that, but you have only the approximate value of the cost of the shorter line. The approximate values never come out under the Transcontinental Railway Commission.

Q. We had the approximate value in both cases at that time?—A. Well no, the eleven and a half miles was built at that time, and we knew that exact cost of it. We had nothing but the approximate cost of the other.

Q. What percentage of the grading was done at that time?—A. It was all done. We had paid so much for that and rendered a statement showing the exact amount we had paid, Foley, Walsh & Stewart for that to the Commission before it was taken over by them.

Q. How much money was involved?—A. I made a return to Mr. Lumsden of the money we had expended there, and he gave us, as I recall it, that amount less ten per cent. Later on the work was carried on by Mullarkey, O'Brien & Fuller, and we did some of that work and the Commissioners paid for it.

Q. The portion of the work actually done was as $331,000 is to $1,470,000? —A. Since that time track-laying and ballasting that double-track bridge over the river have been added to that, and all the work done in the yard at Graham.

Q. Should not the Commissioners have received some return for lengthening their line one and four-tenths miles to lessen your branch line by eleven miles?—A. No, I think it would be utter folly to build two lines parallel within a mile of each other. The railway would not have been as good and we could not have connected with the Transcontinental as well.

Q. But the Commission actually paid for and built one and four-tenths miles more railway than it would have required in order to save you people from building a second track, and you gave nothing for it. Was there not some middle ground they should have reached in connection with this transaction?—A. I always took the ground that that was hardly a debatable subject. The additional cost of that section there, you must remember, takes into consideration the yards at Graham, the engine house, and all that sort of thing, which would have been built by the other line, and it is questionable if there was as favorable a point at which it could have been built.

Q. Assuming it was definitely known that the Commissioners were going to expend $194,000 more than it was definitely known was necessary, and in expending that amount of money they paid the Grand Trunk Pacific something like one million dollars, ought not the Commission have been recouped for the $195,000?—A. If that were true, yes, but I think that statement is very far from being true, always considering that the Commission paid nothing more than they should have paid there. I have always considered it was folly to build another line parallel to them.

MR. STAUNTON: I don't see why they didn't let you continue to own it.

The witness was not further examined.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION: EVIDENCE TAKEN IN TRANSCONTINENTAL OFFICES, NOV. 28th, 1912.)

COLLINGWOOD SCHREIBER, sworn:—

By Mr. Gutelius:

You were consulting engineer to the Government in the year 1905?—A. Yes.

Q. Did you make an estimate in 1903?—A. Yes.

Q. For the construction of the line of railway between Winnipeg and Quebec?—A. Yes.

Q. What was the average price per mile that you estimated?—A. Between Quebec and Winnipeg, $28,000 per mile.

Q. Did you make an estimate of the probable cost of the railway between Quebec and Moncton?—A. Yes, $25,000 per mile.

Q. What character of railway did you have in mind in making these estimates?—A. I made an estimate for a line such as is subsidized in Ontario by the Dominion Government, with grades less than those upon the Intercolonial, which I based at one per cent—that is 52.80.

Q. And the sharpest curvature would be ten degrees?—A. No, I think it was six degrees.

Q. You would have used wooden trestles?—A. Yes.

Q. And practised the ordinary economies in such railways, as the Canadian Northern have built?—A. Yes, very much the same. My view with regard to that is this: that where the cost of taking in material for permanent structures, and so forth, is considerable, not to introduce those at the outset, but to wait until the traffic develops, some years afterwards: in the meantime to build comparatively what you might call a temporary road: that is to say, with wooden trestles and wooden culverts.

Q. Do you, in the light of your subsequent knowledge believe that such a railroad as you have described could have been constructed between Winnipeg and Quebec for $28,000 per mile?—A. I am still of that impression.

Q. Are you still of the same impression in connection with the line between Quebec and Moncton?—A. I am.

Q. If the railway as constructed cost more than the figures which you have named, it was because they used lower grades and more permanent structures?—A. It was brought about by introducing steel bridges over the large rivers. I am speaking more of the west than I am of the east.

Q. You are speaking of District F?—A. Yes.

Q. So far as you have examined it?—A. Yes, and I have estimated for 65 pound rails, the same as were on the I.C.R. at that time.

By the Chairman:

Q. By the introduction of steel bridges?—A. By steel bridges and putting in permanent structures and concrete, and also, I may say, by the increased cost of labor, although I think I could build one now for that price.

By Mr. Gutelius

Q. To whom did you give these estimates to which you refer?—A. 12th July, 1903; this is the estimate.

Q. On the 12th July, 1903, you gave this estimate to Mr. Fielding?—A. Yes. Understand, I did not give it in writing to Mr. Fielding. There is a letter from him to Mr. Emmerson subsequently.

Q. From this statement I notice that you advised Mr. Fielding that a railway with maximum grades of one per cent. you could build from Moncton to the south approach of the Quebec Bridge for $25,000 a mile?—A. That is still my impression.

Q. And from Quebec to Winnipeg $28,000?—A. Yes.

Q. Did you advise him in connection with adding 25 per cent. to those figures for reducing these grades to four-tenths?—A. No, I did not.

Q. Did it not strike you that when Mr. Fielding added 25 per cent., and proposed to construct a four-tenths grade, that he was making a very low estimate for this additional facility?—A. Yes.

By the Chairman:

Q. You have been in the Government service of Canada for a great many years?—A. Yes, over forty years.

Q. And you have had a large experience in the construction of railways in this country?—A. I have been connected with the construction of railways since 1852 in Canada.

Q. Had you any experience in the construction of the C.P.R.?—A. Yes, I was chief engineer for the Government during the construction of that.

Q. And had you any experience in connection with the Intercolonial?—A. Yes, I was deputy chief engineer—that is, assistant chief engineer, I suppose you call it now,—during the construction of that road part of the time, and was also Commissioners' agent.

Q. And in connection with your duties as chief engineer for the Government on the C.P.R. construction, did you traverse that country?—A. Yes, I did, very frequently.

Q. So that you had a personal knowledge of the topography—not from going over it on a railway train, but from going over it as an engineer—of the country lying between this and Winnipeg?—A. Between this and Winnipeg, did you say?

Q. Yes?—A. Yes, along the line of the survey.

Q. Now, when the Government proposed to undertake the construction of a Transcontinental railway from Moncton to Winnipeg, did they consult you in the beginning?—A. They consulted me with regard to the cost of the road.

Q. Who consulted you?—A. Mr. Fielding.

Q. Can you recall the interview between you and Mr. Fielding?—A. My impression is that I informed him that there was no difficulty in building such road as I described between Moncton and Quebec at the figure I named; that I was somewhat familiar with that country.

Q. That country was not an unknown land to you?—A. No.

Q. Had you traversed some of the country through which the line was expected to be built?—A. I cannot say that altogether, although I had before me surveys of lines that had been made through there.

Q. Then you had the information which a chief engineer usually has, when advising a builder of a road concerning that country, at all events?—A. Yes, I think so.

Q. You had a general knowledge of it?—A. Yes.

Q. Derived from your own personal experience and from surveys made through that territory?—A. Quite so.

Q. Had you, when giving that advice, information sufficient, to your own satisfaction, to advise the Government on it?—A. Yes, I had. I am speaking now between Moncton and Quebec.

Q. I am confining the question to east of the St. Lawrence River?—A. Yes.

Q. Did Mr. Fielding know that you had that information? Did you discuss it with him?—A. I have discussed it with him.

Q. Then Mr. Fielding also consulted you as to the construction of the railway through Northern Quebec and Northern Ontario to Winnipeg?—A. Yes.

Q. That was an unsurveyed country, was it not?—A. Partially so.

Q. Was the Quebec section unsurveyed?—A. Yes, it was unsurveyed.

Q. Perhaps it would be better if you would tell me what portions of that country were surveyed that you know of?—A. Well, the Quebec and Lake St. John road had been surveyed for the portion of it from Quebec. Then there was a portion from the end of their surveys which I was not familiar with, and which I had very little information upon, and I stated to him that if they ran along the summit I thought it could be built for that, and then again about Cochrane, from that neighborhood, I based it upon the information I had from surveys and reports made by Sir Sandford Fleming, then Mr. Fleming. So far as my estimate is concerned, I assume all responsibility.

Q. I want to show from you exactly what information the Government had when it asked those estimates to be made; will you tell me how far the exploration by surveys had been made west of Quebec?—A. I could not tell you off hand.

Q. Can you tell me approximately how far that St. John railroad had been surveyed? Was it as far as La Tuque?—A. Oh, yes, I think so, beyond that; it was not under the name of the Quebec and Lake St. John railway that the surveys were made; it was under some charter that Mr. Scott had for the Transcontinental railway.

Q. Are those surveys in the Government's possession now?—A. Not in the Government's possession; they were in the possession of the local government, I presume.

Q. Were they before you at the time?—A. No, they were not; I had seen them, but they were not before me at the time.

Q. Had you gone over them and examined them?—A. Well, that I would not be positive about; I could not state positively as to that.

Q. Was it not a fact that you just had a general knowledge of what the surveys were?—A. I think so.

Q. There was no survey then, or reconnaissance made of the country from the end of that St. John survey as far as Cochrane, was there?—A. Not to my knowledge.

Q. Then from Cochrane do you say there had been a survey made?—A. Several surveys made in that neighborhood, from that neighborhood to Port Arthur, and through to Winnipeg.

Q. Had you examined those surveys?—A. I had examined the reports frequently.

Q. Are the reports in the possession of the Government?—A. They are in the Department of Railways and Canals.

Q. Whose reports are they?—A. All under Sir Sandford Fleming. I can give you the printed documents, if you want them.

Q. The road which you have explained to us that you expected to be built—did you discuss that with Mr. Fielding?—A. No, I think not.

Q. Do you think he appreciated what sort of road you proposed to build?—A. Oh, he did, undoubtedly, because he states that, and he would not deny that.

Mr. Gutelius: He states in his letter of May, 1904, to Mr. Emmerson, with reference to this: "These estimates were made for a road of an ordinary character, such as constructed elsewhere," etc.

By the Chairman:

Q. Has this letter ever been published?—A. I could not tell you.

Q. You produce a copy of a letter from Mr. Fielding to Mr. Emmerson, then Minister of Railways and Canals, dated 11th May, 1904, in which Mr. Fielding says that he consulted you, and that your opinion was that a road could be constructed from Quebec to Moncton for $25,000 a mile and from Quebec to Winnipeg for $28,000 a mile. "These estimates were made for a road of an ordinary character, such as is constructed elsewhere. In order to make a sufficiently liberal allowance for a road of better character, I added 25 per cent., making the estimate $31,250 per mile from Quebec to Moncton, and $35,000 per mile from Quebec to Winnipeg. I have not spoken to Mr. Schreiber on the matter of late, but from other experienced railway men I have received assurances that my estimate was a most liberal one and the road could be constructed well within these figures." The account there of the interview with you is correct, is it?—A. Yes.

Q. What sort of a road could Mr. Fielding have expected to build by adding 25 per cent to your estimate in your judgment?—A. Well, that is a little difficult question to answer, what he had in his mind as to what class of road he would build.

Q. What class of road do you think you could build for $31,250 from Quebec to Moncton?—A. I suppose he intended to reduce the grades; no doubt they could have been reduced, but not to the extent which has now been done.

By Mr. Gutelius:

Q. That is, if your estimate would call for one per cent grades, his might be for nine-tenths?—A. Or something of that kind.

By the Chairman:

Q. Would the same apply in building a road to cost $35,000 a mile from Quebec to Winnipeg?—A. Quite so.

Q. Before undertaking to build a great railway such as the Transcontinental between Moncton and Winnipeg, should not the Government have had a proper survey made of it from one end of it to the other?—A. It would have been much more desirable, of course.

Q. Was it not the part of ordinary prudence to have had that done?—A. Yes, I think so, although it is not always done.

Q. But no person, to your knowledge, has ever undertaken to build a railway of this character and completeness before in America, have they, without doing that?—A. No, I think not.

Q. And when people undertake to build a railway, without first providing themselves with full information, they usually do not contemplate spending such great sums of money as was necessary to spend on this road?—A. It all depends upon the standard established.

Q. You take more risks on a cheap standard than on a high standard, would you not?—A. Oh, certainly.

Q. Had the Government, so far as you know, taken any pains or any steps to acquire information as to the character of this country, before it committed itself to the building of this line?—A. So far as I am aware, nothing beyond what I have stated.

Q. Do you know of any other engineer having been consulted by the Government than yourself?—A. Not that I am aware of.

Q. Because Mr. Fielding says in his letter to Mr. Emerson, "I have not spoken to Mr. Schreiber on the matter of late, but from other experienced men I

have received assurances that my estimation—that is, the adding of the 25 per cent to your estimate—was a most liberal one, and the road could probably be constructed well within those figures"?—A. I do not know whom he consulted.

Q. If he had consulted you, you would not have confirmed that estimate, would you?—A. No, I would not.

Q. You were then in Ottawa, and in the Government service?—A. That was my headquarters.

Q. Were the specifications for the construction of this road submitted to you?—A. I think they were.

Q. And by whom were they drawn?—A. Personally, I do not know, excepting from what I have heard; I have heard by Mr. Butler and by Mr. Woods.

Q. Mr. Butler was then Deputy Minister of Railways and Canals?—A. Yes, Chief Engineer of Railways and Canals and Deputy Minister of Railways and Canals.

Q. And Woods was what?—A. He was the Assistant Chief Engineer of the Grand Trunk Pacific Railway Company.

Q. Did you discuss the clauses in the specifications relating to classification with Mr. Butler?—A. No.

Q. Were you asked specially to pass on these clauses at all before they were adopted?—A. My impression is that the specification was put before me to examine and approve or disapprove, but I have no copy in my office, so that I cannot speak of it positively.

Q. You approved of them?—A. I think so.

Q. After these specifications had been adopted, you know there arose some question as to the proper construction?—A. Of the clauses, yes.

Q. Of the clauses relating to classification?—A. Yes.

Q. And you know that the engineers, specially in Quebec, put a construction upon the first clause—that is, clause 34—with which Mr. Lumsden did not agree?—A. Yes.

Q. Do you know that Mr. Lumsden construed that clause 34, which is the one relating to solid rock excavation, so as to exclude from solid rock excavation everything which was not rock?—A. Yes.

Q. Would you agree with that?—A. Everything which was not rock certainly would be excluded.

Q. And afterwards Mr. Lumsden tells us that he was shown the opinions of several eminent counsel, obtained by the contractors, to support their contention respecting the construction of these specifications, and that, as the opinions differed from him, and as the Commissioners differed from him, that he was brought to make a modification of his own views of the specifications; did you know that?—A. I knew that eminent counsel had submitted their views with regard to the specification, but I did not know that he had modified his views.

Q. He tells us that he did, and I think in the Lumsden enquiry he said he did; he is made to modify his views so as to include in the classification material which was not solid rock, when mixed with solid rock; that is, the matrix in which the rock lay?—A. Do you refer to what he calls assembled rock?

Q. I do.—A. Yes, I was aware of that assembled rock, but I did not know he did not agree about it before.

Q. Do you know that he at first contended that even in assembled rock none of the interstitial material should be classified as solid rock?—A. No, I did not understand that. What I understood by his assembled rock, that it was fragments of rock, cemented together in bodies of not less than a cubic yard.

Q. What did you understand him to mean by cemented together? Was it really cemented together by fused material?—A. No, not that exactly; that could not be separated with a pick and bar.

Q. Cemented gravel could not be separated in that way?—A. No, but that is specified under another clause as to what it shall be.

Q. You do not understand, then, that he excluded from solid rock any material which was not rock?—A. In the sense in which I tell you, yes. I made him a sketch of it. I understood it was solid rock when it was fragments of rock cemented together.

Q. If those fragments were separate, they would be loose rock, would they not?—A. Yes.

Q. And if that material was separate, it would be loose rock?—A. Yes.

Q. So that you take two classes of material, each of which is loose rock, and, together, they make solid?—A. It would be the cementing together that would make it solid rock.

Q. You were over the line, were you not?—A. I was a number of times.

Q. Did you ever see anything on the line, any material which would be classified as cemented rock?—A. I think in one or two instances; it may have been only one; I cannot call to mind where it was, but I think there were one or two places.

Q. Real assembled rock would be a very rare bird on this line, would it not?—A. Yes, very indeed.

Q. And what portion of the line did you go over?—A. I went over from Winnipeg the whole way down to about 20 or 30 miles below Quebec.

Q. And you only say in one or two places any material which you would classify under assembled rock?—A. That is my recollection.

Q. Then the assembled rock was not a very serious matter in your view, if the classification was properly applied?—A. No, I think not.

Q. Did you go over the McArthur contract?—A. Yes.

Q. For what purpose?—A. We went over it in connection with the arbitration. I was the third arbitrator, I may say. I went over it first by orders of the Government, to see whether the statements of the engineers were correct that their line between Winnipeg and Graham would be ready for operation before the branch from Graham to Fort William.

Q. And you also went over it as the third arbitrator in an arbitration between the G.T.P. and the Government?—A. I did; I was third arbitrator.

Q. Did you see anything to criticize in the way the work was done?—A. A good deal.

Q. Will you tell us some of it?—A. With regard to classification and overbreak.

Q. What did you object to in the classification?—A. That it was very largely overestimated; the classification was higher that it should have been, very largely.

Q. And the overbreak?—A. As to the overbreak, I was under the same impression, especially in the McArthur contract.

Q. Was there any other matter?—A. There was unnecessary overbreak, I think, in O'Brien and somebody's work.

Q. But you particularly objected to the classification and overbreak on the McArthur contract?—A. Yes.

Q. You thought they were— A. Excessive.

Q. And did you go over the railroad west of the St. Lawrence River?—A. Yes.

Q. Through the Province of Quebec?—A. Yes. Well, I did not go over the whole of it; I went over it from where the work was in operation to Quebec; that is all.

Q. What did you think of the classification between Quebec and La Tuque?—A. Well, it was overclassified there, but not to the same extent, I think, that it was on the McArthur contract.

Q. Was there any overbreak? Did you think the overbreak was excessive?—A. I did in one or two cases particularly.

Q. Were you through New Brunswick with the idea of examining the classification?—A. I was not through the New Brunswick line, as far as I remember.

By Mr. Gutelius:

Q. Did you make a study of the advisability of constructing a new line through New Brunswick paralleling the I.C.R.?—A. No, I never had any discussion with the Ministers about it.

Q. You would not have recommended it, would you?—A. No, I would not.

Q. In the matter of classification, the plough test shown under loose rock was intended to be in your judgment a test of hardness?—A. Undoubtedly so.

Q. Did you have anything to do with the preparation of the book of instructions to engineers on the N. T. R.?—A. No, nothing whatever.

Q. Did Mr. Lumsden make it clear to you, when discussing the assembled rock feature, that there was a controversy between him and the Commissioners on that clause? Did he make you feel that it was a very important matter?—A. Oh, yes, I think he did, but I do not remember any great discussion about it.

Q. You do not recall that he really felt that he was compromising between his judgment and the judgment of other people when he agreed to that?—A. No. Evidently he must have brought the matter up before me, because I made that diagram, which I referred to, so that it is pretty clear, although I do not remember what was said at the time, but it is evident he must have done.

Q. He advises us that this assembled rock feature was really a compromise between contending parties, himself on one side and the contractors and the Commissioners on the other, and that, after they failed to agree, they asked him to go and see you and arrive at some conclusion in which you would concur?—A. I have no doubt that sketch originated from that.

Q. Did you discuss this sketch with anyone other than Mr. Lumsden at that time?—A. I think not.

Q. And if you did discuss it with Mr. Parent, you would have remembered it?—A. Oh, I would have remembered it.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION: EVIDENCE TAKEN AT THE TRANSCONTINENTAL OFFICES, OTTAWA, NOV. 27TH, 1912.)

W. F. Tye, sworn—

By Mr. Gutelius:

Q. Will you tell us, in short form, your experience in railway work?—A. I began on railway construction on the Canadian Pacific in 1882, and was employed on the construction of the main line and some of the branches until the main line was completed in, I think, the end of 1885, or early in 1886, I forget which. From there I went to what is now the Great Northern Railway, which was then known as the St. Paul, Minneapolis and Manitoba, and I was employed first on grade reduction out of Minneapolis: afterwards on the location of what is now known as the Montana Central: that is their line from Havard to Bute, Montana. It is a little hard to remember exact dates.

Q. Just give them roughly?—A. I was with the Great Northern for two years. I then went to Mexico and was employed on the Tampico branch of the Mexican Central. I was engineer of track-laying and bridging, and acting road-master of a portion of the road. I left this road after about a year and returned

north, and went to the Great Falls and Canada Railway Company as locating engineer and division engineer on construction. This road ran between Great Falls, Montana, and Lethbridge, Alberta. I had charge of all the location on the American side, and about half of its construction, and was employed about a year on this. I then went back to the Great Northern on the Pacific extension, and located all the road on the west side of the Cascades, including their long tunnel about 2 1-2 miles. On the completion of the location I was employed as division engineer on the construction of the mountain section. I was employed in the neighbourhood of two or three years on this work. I then went to Lethbridge, and was engineer in changing the gauge of the Alberta Railway and Coal Company's road, now a part of the C.P.R. between Dunmore and Lethbridge; afterwards made a location for a projected line between Lethbridge and Macleod. I then went to Kaslo in the interests of the Great Northern, and was for a time Chief Engineer of the Kaslo and Slocan, and afterwards went to Rossland, and was chief engineer of what was first known as the Trail Creek Tramway, and afterwards as the Columbian Western Railway, between Trail and Rossland and Trail and Robson. On the completion of this road I went to the Canadian Pacific. As chief engineer of the Columbian Western I had charge of the surveys between Robson and Penticton, and the construction between Robson and Midway. On the completion of this road I was made chief engineer of construction of the Canadian Pacific, and in 1902 was made assistant chief engineer of the whole system of the Canadian Pacific, and in 1904 I was made chief engineer of the whole system, where I remained till 1906. Since that time I have been engaged in consulting practice.

Q. In the matter of the various problems which this Commission has placed before you, your attention was first called to Instructions to Engineers, a book issued under the authority of the chief engineer, Mr. Lumsden, dated January, 1907? —A. Yes.

Q. Your attention is called to section 29 of these instructions, where it says: "Every effort will be required to secure a level track at stations for 2200 feet each side, particularly at terminal points, water stations, and so forth." Under no circumstances will the water tank be placed in a sag"?—A. Yes.

Q. Are you familiar with this?—A. Yes.

Q. Do you believe that 2,000 feet of level on each side of a station is necessary?—A. At the ordinary stations and water tanks, where freight trains stop but a few minutes, there is no necessity whatever for 4,000 feet of level, and, unless on a maximum grade, no particular change in the grade is required, except that the best available location as to grade should be chosen, provided it is otherwise suitable. On ruling grades every stop should be compensated for. The amount of this compensation depends on a variety of things; the importance of the station, the length of time freight trains will usually stop, the location relative to the maximum grade, whether near its head or at its foot, stops at or near the foot of a ruling grade being the worst, the amount of maximum grade on the section. The compensation is provided not only to take care of the starting resistance, which may at times be greater than the rolling resistance, but also to permit trains to rapidly increase their speed.

Q. What is the rule in regard to compensation for stops on ruling grades? —A. The Canadian Pacific rule regarding compensation for stops on ruling grades is as follows:—

"Train stops on ruling grades should be compensated according to proportion of ruling grade to length of section, varying from zero to 10 feet. If ruling grade one way is 70 per cent, compensate stops at zero."

Q. That is, you will provide no compensation if 70 per cent of an engine section is on a ruling grade?—A. That is right.

Q. Explain the rule?—A. This means that if the engine section should be, say 100 miles in length, and if 70 miles of that is ruling grade: that is, four-

tenths in case of eastbound traffic on the Transcontinental; and the balance less than four-tenths, then the train must be made so light in order to make time over the section that they can easily start such trains on the ruling grade. The rule continues—

"If ruling grade one way is 40 per cent of section, compensate stops at five feet."

This means that in the length of the side track the grade must be made five feet flatter in its whole length than the ruling grade would call for.

"If ruling grade one way is 10 per cent of section compensate stops at 10 feet."

By the Chairman:

Q. The siding in which the train runs must be ten feet flatter?—A. Yes. For instance, we will assume a side track 4,000 feet long: if this were on a straight line and on the ruling grade, the difference in elevation between one end of the side track and the other would be 16 feet. This rule requires this rise to be reduced to six feet.

By Mr. Gutelius:

Q. I understand that the rules which you have given for the Canadian Pacific apply to that portion of the railway which is built with four-tenths grades?—A. Yes.

Q. With reference to the instructions of the National Transcontinental, they do not refer in any way to ruling grades?—A. No.

Q. Then, if these instructions were followed where grades are less than ruling grades, the additional cost for following these instructions would not be justified?—A. No.

By the Chairman:

Q. When you speak of ruling grade, you mean the general grade of the railway?—A. No, you mean that particular grade on the section which limits the haulage capacity of the locomotives.

By Mr. Gutelius:

Q. With reference to section 26 of these instructions, which says:

"The maximum curve on a level shall not exceed six degrees, radius 955 feet. This curve should be used sparingly, and only when the topographical conditions prohibit an easier grade."

Do you believe it a wise policy to adhere strictly to such a rule, or, in exceptional cases, do you believe sharper curvature might be used? You might state fully your views on this subject?—A. I believe that such a general rule is a wise one, but I also believe it should, in exceptional cases, be departed from, where the saving in using an eight, or even a ten degree curve, would be large. The questions to be considered in deciding on the sharpest curve which may be used are: cost of maintenance and operation: effect on speed: effect on haulage capacity of locomotive: limiting effect in the use of certain equipment; greater danger of sharp curvature. The use of sharper curvature does not increase the cost of maintenance or operation: that is, a mile of track made up of 100 degrees (or 1,000 feet) of 10 degree curve, the balance tangent, is no more expensive to operate or maintain than one made up of 100 degrees (or 5,000 feet) or 2 degree curve, the balance tangent. Any difference is probably in favor of the sharper curvature.

Q. What is the effect on speed?—A. The effect on speed, on a long line like the Transcontinental, is of no importance whatever where a few sharp curves only are used. The safe speed on curves, properly equipped with tie plates properly lined, surfaced and gauged, and provided with easement curves, depends on the total allowable elevation of the outer rail. If the maximum be set at six inches, the safe allowable speeds for different curves would be: Three degrees, 60 miles an hour; four degrees, 50 miles an hour; five degrees, 45 miles an hour; six degrees, 40 miles an hour; eight degrees, 35 miles an hour; ten degrees, 30 miles an hour; fifteen degrees, 25 miles an hour. The present Canadian Pacific Imperial Limited makes the run from Montreal to Winnipeg, a distance of 1,421 miles, in practically 48 hours, at an average speed, including stops, of a little less than 30 miles an hour. A speed of 30 miles an hour is quite safe on 10 degrees curves. By quite safe, I mean it is easy riding and no perceptible shocks to the passenger. Therefore, there is no objection, with such trains, to 10 degrees curves on account of speed. The Twentieth Century Limited, between New York and Chicago, makes the run of 980 miles in 20 hours, or at an average speed of 49 miles an hour, including stops. In the present condition of railroading, it would not be safe, and certainly would not be advisable, on such a long run as that between Quebec and Winnipeg to exceed an average speed, including stops, of 40 miles per hour. If we assume an average running speed of 45 miles per hour, exclusive of stops, and a ten degree curve so long that the average speed must be reduced for a mile—and I may say that such a curve would be very exceptional indeed—the loss in time in reducing from 45 miles per hour to 30 miles per hour would be only sixty-seven hundredths of a minute. One hundred such curves would only mean a reduction in the running time between Quebec and Winnipeg of one hour. Such a loss of time on such a long journey has no value whatever.

Q. And if a greater speed were required it could easily be provided for by cutting out a number of country stops, or introducing quicker methods of taking water?—A. Yes.

Q. What is the effect on haulage capacity of locomotives if sharper curvature be used?—A. The standard compensation for curvature on grades on this continent is 0.04 feet per degree for 100 feet. This is the rate as authorized in section 27 of the "General Instructions" issued by the Commissioners of the Transcontinental Railway. It is believed by the great majority of engineers and railroad men that this rate is too high, but at all events, it is high enough. A 10 degree curve on the level has, therefore, the same limiting effect on the haulage capacity of a locomotive as has a 0.4 per cent grade on a tangent. All limiting effects on the haulage capacity of locomotives on 0.4 per cent ruling grades can be eliminated by making the grade on the curve level. 10 degree curves are, therefore, not limiting, as far as haulage capacity of the locomotives are concerned.

Q. Does a 10-degree curve have any limiting effect upon modern rolling stock?—A. All modern locomotives and cars can safely traverse curves as sharp as 14 degrees, without any extra precautions; with guard and hold-up rails they will safely traverse curves as sharp as 22 degrees. 10-degree curves are not, therefore, limiting as far as equipment is concerned.

Q. What would you say as to the relative danger between six-degree and ten-degree curves?—A. The relative danger in the use of curves on a railway is wholly one of speed and the condition of the track; and curves as high as 15 degrees, or even 20 degrees, are quite safe, if in proper alignment and surface, and the speed is reduced to the safe limit.

Q. What would you say, generally, then, in connection with the use of curves sharper than six degrees on the Transcontinental Railway, where a considerable amount of money might have been saved in original construction?—A. Curves as sharp as 10 degrees do not add to the cost of maintenance and operation, and are not more dangerous, at the proper speed, than flatter curves. They are not limiting as to the haulage capacity of locomotives, or to the character of

the equipment. They are not limiting as to the speed of trains of a class equal to the C.P.R. Imperial Limited, and are only limiting as to time when the maximum allowable speed will be used, which certainly will not be for years. The limiting effect at that time will be so small as to have no appreciable effect on the road. On the other hand, as such a curve—unlike a steep grade—is not limiting in its effect, the use of one such curve does not justify the use of another. Their free use would undoubtedly depreciate the character of the road. Each case must be decided solely on its own merits, and only because the use of the sharper curves would result in a large saving.

Q. Then would you have recommended a modification in this original instruction concerning a maximum degree of curvature?—A. The rule is a reasonable one to be included in the General Instructions, but it should have been modified by a circular to the effect that where the use of curves sharper than 6 degrees would result in a large saving, surveys should be made and detail estimates submitted, showing the amount of such saving: no curve sharper than six degrees to be used without the express sanction of the chief engineer in each case.

Q. Would any large saving have been effected had this latitude been given in the construction of this railway?—A. There cannot be any doubt that in rough crooked country this rule, rigidly adhered to, especially in connection with the rule making the minimum length of tangents between the ends of easement curves 300 feet, must have resulted in tremendous expenditures that have absolutely no value whatever.

By the Chairman:

Q. What is a tangent?—A. A straight line.

Q. A straight line lying between the curves?—A. Yes.

Q. And so when one speaks of a tangent on a railway, he means a straight line?—A. Yes.

Q. A circular is 360 degrees?—A. Yes.

Q. And the more degrees there are in that curve, the sharper that curve is?—A. The more degrees there are in 100 feet of that curve, the sharper the curve is; that is, in speaking of a six-degree or eight-degree or ten-degree curve.

Q. When you speak of a six-degree curve, you mean there are six degrees in 100 feet of that curve?—A. Yes.

Q. And when they speak of the number of degrees in a curve, they are speaking of 100 feet of the curve?—A. Not quite. When they speak of the degree of a curve, it means the number of degrees in 100 feet.

By Mr. Gutelius:

Q. The number of degrees of central angle in 100 feet of a curve?—A. Yes.

By the Chairman:

Q. When you speak of a six-degree curve being preferable to a ten-degree curve, you do so because a six-degree curve is flatter than the ten-degree curve, and a ten-degree is sharper than a six?—A. Yes.

By Mr. Gutelius:

Q. Are ten-degree curves used on the main lines of important Canadian railways?—A. Yes.

Q. You have ridden over such curves at rates in excess of those mentioned in your evidence?—A. Yes, frequently.

Q. And did not feel that you were going in the ditch, either?—A. No.

By the Chairman:

Q. Trains often go at a higher speed that laid down in the rule?—A. Yes.

Q. The rule leaves a large margin of safety, does it not?—A. Yes.

By Mr. Gutelius:

Q. Ten miles an hour is considered reasonable excess speed over a track that is elevated for a given speed?—A. Yes.

Q. That is, a curve elevated for 45 miles an hour can be traversed by a train at 55 miles an hour, and, whilst you recognize that you are traversing a curve, it is not dangerous?—A. No.

By the Chairman:

Q. A train may exceed the speed laid down in the rule by ten miles an hour with safety?—A. Yes.

By Mr. Gutelius:

Q. You referred a moment ago to the length of tangent between curves?—A. Yes.

Q. You have handed in a copy of a circular letter, dated Ottawa, June 8th, 1906, signed D. MacPherson, assistant chief engineer?—A. Yes.

Q. You have noted the last clause of the letter which says "In special cases, where it would result in a large saving in cost of construction, tangents may be a minimum length of 300 feet between ends of easements, but this minimum must on no account be reduced". You understand that in the original instructions this length of tangents between curve easements was given as 600 feet, and MacPherson's letter reduces it to 300 feet. Do you believe it is good engineering practice to insist on even a minimum of 300 feet between the ends of easement curves?—A. I do not. On the contrary, I believe it is very bad engineering. Easement curves are used for the purpose of preventing shock to the train, caused by the sudden change in direction in passing from a straight line to a curve, and to permit of the elevation of the outer rail to be gradually increased. Spiral, or easement curves, have an infinite radius at their commencement. The radius is gradually reduced from the point of commencement to the point where the easement curve coincides with the regular circular curve. Or, in other words, the curve starts as a straight line, and is generally sharpened until it reaches the point where it merges with the circular curve, where it is of the same degree. At the same time the elevation of the outer rail is gradually increased, being zero at the point of commencement of the easement curve, and the full amount required where the two curves merge. With good alignment there is no perceptible shock in entering or leaving a curve.

Q. By good alignment, you mean the surface given by the trackmen, and the removal of small kinks, that is in the hands of the trackmen?—A. Yes.

Q. With curves spiralled in this manner, is there any objection to bringing the points of spiral closer together?—A. No. The objection to ordinary reverse curves—that is, curves which, at a point, change from a curve in one direction to a curve in the opposite direction—is that there is double the shock there would be in entering or leaving a simple curve. At the point of the reverse, what was the outer rail of one curve at once becomes the inner rail of the other curve. It is impossible to at once change the elevation of the outer rail from one rail to the other; this must, of course, be done gradually; so that for a certain distance on each curve there is an improper elevation. Taken altogether, the double change in direction, and the lurch in the car changing from an elevation on one side to an elevation on the other, causes a violent shock, even with the most perfect track which it is possible to maintain

Q. This refers to reverse circular curves?—A. Yes, that is curves without any easement curves. On the other hand, where proper easement curves are used, the cars pass gradually and imperceptibly from the curve, and gradually and imperceptibly obtain their upright position, so that by the time the end of the easement curve is reached, the tracks are in a perfect straight line, and are perfectly upright, and therefore in a perfect condition to enter another curve in the reverse

direction, provided this curve in the opposite direction is also approached by means of a similar easement curve. Theoretically, therefore, there is no objection whatever for one curve, provided with a proper easement, to at once change to another similar curve in the opposite direction. Practically, however, even the best track is never in perfect condition, either as to alignment or surface, and it is advisable to allow, say 50 feet of a straight line between easement curves in opposite directions.

Q. This is largely on account of the length of cars?—A. Yes.

Q. The single truck would pass from one easement curve to another without any shock?—A. Yes.

Q. What effect does curve easement have on the speed of trains and the comfort of passengers?—A. With such alignment, there is nothing whatever to prevent passenger trains making a speed of 60 miles an hour without perceptible shock to the passengers.

Q. Around curves of three degrees?—A. Yes. If sharper curves, they must, of course, be reduced in proportion, but as far as the reversing is concerned, there is no perceptible shock. The degree of curve must have its proper speed, as already referred to, in the question of sharper curves.

Q. In other words, if two curves of a given degree of curvature are reversed and spiralled, and their points of spiral were fifty feet apart, they would ride as comfortably, and be as safe as if the tangent between these points of curve were 300 or 600 feet?—A. Yes.

Q. And any greater length than those, which requires large expenditure, would be a useless refinement?—A. Yes.

Q. Would it have any effect on the tonnage that locomotives can haul?—A. It would have no effect whatever on the tonnage. It would not permit them to haul any more tonnage or to make any better time.

Q. So that these tangents might have been reduced on the Transcontinental, without affecting the efficiency of the road, or the comfort of the passengers, or the running time of passenger trains in any particular?—A. Yes.

Q. And any money that might have been saved by reducing these tangents should have been saved if advantage were taken of the points which you have raised?—A. Yes.

Q. What, then, do you say of the rule itself?—A. Such a rule is decidedly expensive on construction in a rough crooked country, such as is much of the country traversed by the Transcontinental. I have been trying mentally to apply it to some of the rough country through which I have located railways, and I confess the thought appalls me. I am certain many many millions must have been spent in this way to produce results that are absolutely valueless, or, to speak more correctly, are worse than valueless. The object for which the Transcontinental must have been built was to give a good rapid passenger and freight service between the east and west, and above all to secure the most economical means of moving traffic between the west and east, and vice versa. Or, in other words, to build a road that would permit of freight being handled at the very lowest possible rate. No railway can for a great length of time move traffic at less than cost. The actual cost of handling traffic is the cost of operation, plus the fixed charges. A railway can handle traffic at the least cost when the sum of the operating expenses and the fixed charges is the least sum. Any increase in fixed charges which does not reduce the operating expenses by the same or greater sum is an added burden for the road to carry, and means an added amount to freight rates. This ruling that at least 300 feet must be used between easement curves in opposite directions must add a very large amount to the cost of the road, without in any way reducing the operating expenses, and therefore adds to the cost of handling traffic, and it is in this respect a debasement of the road similar in effect to an increase in the grades.

Q. Can you give us the rules with regard to spiral or easement curves on any other roads with which you have been connected?—A. Yes. The Canadian Pacific Rules regarding spirals or easement curves are as follows:—

"Spirals must be used on all final location. Under ordinary conditions the length in feet of spiral for main lines will be equal to the degree of curve multiplied by 100 feet, the maximum length being 400 feet. On branch lines or rough country, spirals may be shortened, the length being equal to the degree of curve multiplied by 50 feet, the maximum length being 200 feet. The minimum length of tangents on main lines between curves in opposite directions will be at least equal to half the length of the two spirals required for curves, the minimum in any case being 200 feet.

I might put in an explanation there. What is meant is the minimum length of tangents on main lines between simple curves; that is before the easement curve was introduced; so that then you permit of the curves being spiralled, without any tangent between the point of spiral. The rules proceed

"On the same section of line, if sharp curves and short spirals are necessary to avoid heavy construction, do not use this standard over the whole section, but try to improve other portions so that fast speed may be made to compensate for slow speed over first mentioned portion".

Q. From this rule it appears that the Canadian Pacific not only permit their engineers to locate a railway without any tangents between spirals but they also permit of the spiral being shortened, where money can be saved?—A. Yes.

Q. So that that feature, if introduced in the rougher country along the Transcontinental, would doubtless have enabled the engineers to have accomplished even greater savings than if the tangent between points of spiral had been simply reduced to 50 feet?—A. Yes, undoubtedly.

Q. Do you think that the practice of the Canadian Pacific Railway would have been proper for the Transcontinental engineers to have followed?—A. Yes, I undoubtedly think so.

By the Chairman:

Q. There are two kinds of curves; there is the circle curve?—A. Yes.

Q. You have spoken of two kinds of curves: one is the circle curve and the other the spiral or easement curve; is that correct?—A. Yes.

Q. The circle curve is just part of a circle?—A. Yes.

Q. If you continue the curve you will come to the point where you start?—A. Yes.

Q. The spiral or easement curve is such a curve that if you continue it you will never come back to where you started?—A. No.

Q. That is to say, a spiral curve is one in which the curve keeps changing, or may keep changing all the time. It is sharper or flatter as you go along?—A. Yes.

Q. You speak of the practice of the C.P.R. in regard to curves. Is that practice peculiar to the C.P.R.?—A. No.

Q. Or is it the general practice of American roads?—A. Yes the general practice of the best American railways.

Q. Adjusted to fit their particular territory?—A. Yes.

Q. But it is recognized as a standard practice?—A. Yes.

Q. Not one invented by themselves?—A. No.

Q. In a spiral curve the radius changes at every point?—A. Yes.

Q. That is to say, a line drawn from what was the centre when you started the curve to different points in the curve will never be the same?—A. Will never be the same.

Q. To put it in a homely way, if one takes a piece of rope and coils it up on the floor, he will have a spiral curve if he follows the rope round?—A. Yes.

Q. Referring to your statement that a very large amount of money might have been saved by reducing the length of tangents between curves, will you please explain just how that saving could be made?—A. Well, this saving can be made because a line with short tangents between reverse curves is more flexible than one with longer tangents. In many cases it enables the engineer to avoid heavy cuts and deep fills, more especially in crooked country; that is where the contour is very crooked.

Q. In other words, the engineer should be allowed to use his discretion, so that he may adjust the line so as to avoid expensive cuttings and deep fills?—A. Yes.

By Mr. Gutelius:

Q. So that with a larger margin in the matter of the degree of curve, a larger margin in the matter of the length of tangents between curves in the same direction, or curves in opposite directions, the locating engineer would have been able to have laid out a line of railway which would cost very much less, would he not?—A. Yes, very much less.

By the Chairman:

Q. A note to all these rules, saying that these were only for general guidance, and that the engineer was expected to use ordinary discretion, would have avoided the trouble?—A. It would not have required a note. If the engineers were told that they were allowed certain latitude it would have answered.

(Adjourned till 2.30 p.m.)

CORRY BUILDING,

Wednesday afternoon, November 27th, 1912.

Continued examination of Mr. W. F. Tye by the Transcontinental Investigating Commission (Messrs. F. P. Gutelius and George Lynch-Staunton).

Reporter sworn.

CIRCULAR NO. 118.

Mr Gutelius:—With further reference to curvature, Mr. Tye, you have been furnished with a copy of Circular No. 118, dated Ottawa, August 18th, 1908, signed D. MacPherson, Assistant Chief Engineer; what have you to say to the opening sentence which reads as follows:—"It is desirable to have all bridges (especially high trestles) on tangents and level grades, if such locations can be obtained without excessive cost"?

Mr. Tye:—In regard to the desirability of "having all bridges (especially high trestles) on level grades" I believe a sweeping instruction such as this is very apt to lead the engineers in the field astray. There are certainly many cases where it is not advisable to put trestles on level grades even if it could be done without extra cost.

On a long grade, whether ruling, pusher or minor, it would certainly be unadvisable and bad engineering to introduce short stretches of level at every bridge or trestle. This would introduce the very danger the circular tries to avoid in the second sentence, namely, a shock to the trestle caused by break in grade.

There is no apparent reason why a short grade should be broken to introduce a level grade on a trestle; every break in grade is objectionable to some degree and should only be introduced for economic reasons.

There is no reason why trestles or bridges should be treated any different from the ordinary road bed as far as grades and alignment are concerned.

It would certainly be desirable to have the whole road on a tangent and level grade, but this is impossible—any grade or any curve should be introduced solely for economic reasons. A liberal scale of values has been given for curvature, rise and fall, etc., etc. If the introduction of a curve or a grade will save more than the values given, then it should be introduced, otherwise not. If there are special circumstances surrounding any particular place which makes it undesirable why a curve or grade should not be introduced such circumstances should be given due weight. For instance, a trestle on a curve might give unsafe foundations while on a tangent the foundations might be quite good. It would be advisable in this case to take the tangent even if the curve were much cheaper.

A circular which says that bridges or trestles should be on tangents and level grades is wrong; it simply leads the engineers in the field to believe that such conditions must be met and a better line with curves and grades on the trestles might not even be considered.

Mr. Gutelius:—What have you to say to the second sentence—which reads, "It is particularly objectionable to have such structures located on vertical curves, at the intersection of two grades"?

Mr. Tye:—This is objectionable in the same way—it does not put any money value on a vertical curve on a bridge; it simply tells the engineer in the field that such a thing is "particularly objectionable". The circular goes on to say—"Wherever it is impossible to conform with the above-mentioned requirements without greatly increasing the cost, detailed comparative estimates should be submitted showing exactly what it would cost to eliminate the objectionable features". That is, the circular tells the engineer that if he can avoid curves on bridges or grades or on vertical curves at any reasonable cost he must do so: if the cost is unreasonable he must send estimates of the cost of elimination of the so called "objectionable features" and the head office will decide—elsewhere they tell him $50,000 for taking a curve off one end of a high trestle is considered reasonable.

The circular is simply an open invitation to reckless extravagance without one standard to guide the engineer. If there were anywhere in the world a railroad which did not have bridges and trestles on curves or grades or vertical curves, there might be some excuse for such a circular, but I do not believe such a road exists or is ever likely to be built.

Mr. Gutelius:—It would prove then that the basis for this circular is simply sentiments?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—And that is all?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—What do you mean by the expression "There is a scale of values for grade and curvature"?

Mr. Tye:—Well, that if they can eliminate any curve they may do so provided it will not cost more than a sum which has been set. The same way with rise and fall.

Mr. Lynch-Staunton:—Then a scale of values means he may make changes provided these changes will not give an increased cost more than a certain stated sum. That is what you mean by the expression?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—And those amounts are set down for the different changes which may be contemplated?

Mr. Tye:—Yes.

Mr. Gutelius:—And they are based on the volume of traffic so that capital expenditure will have the effect of reducing operating expenses?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—You have stated Mr. Tye that where a bridge is built on a curve, the foundation may be unstable whereas if it were put on a tangent the foundation might be sound. You mean by that, do you not, that on a curve a foundation will be on one side while on a tangent it would be on another and that the natural side may in the one case be good and in the other bad?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—So, therefore, insisting on the rule that no bridge should be on a curve they may be deliberately taking a worse foundation?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—So that they must be governed by the local conditions in deciding whether they shall have a curve or a tangent in any bridge?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—Now what is a vertical curve?

Mr. Tye:—The grades as drawn on a profile, if produced to an intersection, would come to a sharp, sudden change just as if two straight horizontal lines were produced to an intersection.

Mr. Lynch Staunton:—Starting from a given point and going a thousand feet westerly you are going downward, we will say on a four-tenths grade. Then that four-tenths stops at a thousand feet and suddenly turns the other way up for four-tenths. Now where these two meet is of course the lowest point on the two grades. Now, Mr. Tye, where does the vertical curve come in in that case?

Mr. Tye:—Well at that point there is a sharp angle and you don't want angles because they cause a lurch in the train, and so the grade is put in to take out that angle just the same as a curve is put in, in a vertical curve; just the same as a horizontal would be put in if the lines were horizontal.

Mr. Lynch-Staunton:—So you make a curve on the roadbed so that one of these grades can run gently into the other?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—That is there are horizontal and vertical curves as we understand the words?

Mr. Tye:—Yes.

CURVES ON TRESTLES.

Mr. Gutelius:—You have just handed a copy of file No. 305 relating to curves, Mr. Tye? Will you state whether in your opinion curves on trestles are unduly objectionable?

Mr. Tye:—Curves on trestles are objectionable in the same way as curves are objectionable on any portion of a railway. The ideal condition is a straight line and a level grade, but unfortunately it is very rarely that such conditions can be realized. The objections to curves are the additional wear on the rails and the additional danger of derailment. The additional wear of the rail on a curve on a trestle is no greater than on any other curve. The additional danger of derailment on a curve on a trestle is usually less than on any other curve.

Mr. Gutelius:—Why do you say it is less?

Mr. Tye:—The track on trestles with proper foundations, properly constructed and kept in proper repair, is almost invariably better than the track on ordinary roadbed. The proper elevation of the outer rail is more easily maintained and therefore the danger of derailment on a curve on a trestle is less than on a curve on ordinary roadbed.

Mr. Gutelius:—Just why is that the case?

Mr. Tye:—Well, the trestle has a solid foundation. It is carried up in solid timber, steel, concrete or piles, or whatever it happens to be, and therefore there is no question as to settlement; whereas an embankment made of earth or rock will always settle. This is more especially true when the road is new. But even in old embankments it does happen, and they are also more subject to washing by rains, storms and so forth and therefore there is more chance of settlement and consequently more danger of derailment.

Mr. Gutelius:—On a curve on an embankment rather than a curve on a trestle or bridge?

Mr. Tye:—Yes.

Mr. Gutelius:—Is there any further reason why a curve on a trestle or bridge is made safer against derailment than on an ordinary embankment.

Mr. Tye:—In case of derailment the chances of a wreck are less on a curve on a trestle than on a curve on the ordinary roadbed because curves on trestles are fitted with safety appliances. Inside guard rails are, or should be, placed on every trestle to prevent a derailed truck from turning at an angle to the track and to safely guide the track across the trestle. A familiar form of this safety appliance is the "Jordan Guard". One or more outside guard stringers are also placed on all trestles to further prevent the derailed trucks from turning at an angle to the track, and to help in safely guiding the truck in a line parallel with the rails. Ties are spaced much more closely on trestles than on ordinary track and are firmly bolted to the stringers, thus preventing all bunching and so preventing the wheels dropping into the spaces made by the bunching of the ties. No such precautions are taken on curves on ordinary track. Hence the danger of a wreck is less where a derailment occurs on a trestle than on ordinary roadbed.

Mr. Gutelius:—Because on an ordinary roadbed provisions in the way of guard rails are not made?

Mr. Tye:—Exactly.

Mr. Gutelius:—Is there anything in the statement that a trestle is a weak spot in a roadbed?

Mr. Tye:—There is none whatever. The added strain can be easily taken care of in the design of the trestle. The only objection to a curve on a trestle over and above a curve on the ordinary roadbed is the possibility of more serious damage should the truck surmount the inside guard rails and the outside guard stringers and the cars plunge over the side of the trestle. Such a wreck would undoubtedly be a bad one, but so would a wreck on a high rock embankment or on a steep rock side hill—it is questionable which would be the worse—and it is absolutely impossible that curves can be avoided in all such places.

Mr. Gutelius:—What would you say about the possibility of building trestles on a tangent?

Mr. Tye:—It is absolutely impossible that all trestles on curves can be avoided. It is axiomatic that in economic railroad location that the curve be placed at the obstacle rather than at either side of it. The very nature of a stream requiring a large trestle is that it lies in a deep valley—or that the general contour of the country is concave at that point. If the country is to be fitted with an economic line under such conditions a curve is required at that point. Many valleys are so wide and deep that it is necessary to run the railway up one side for a certain distance until a practical crossing is found, and follow back on the other side until

the general line of the route is again encountered. This condition naturally requires a curve at the crossing of the valley. The location may be following down a branch of a stream and where this branch meets the main stream a crossing of the main stream may be necessary—under such conditions a curve at the intersection of the streams is almost sure to be a necessity. Dozens of other instances might be cited where curves at streams are necessary, and if in any of them the curve is not placed on the bridge the added expense would be excessive. Such a ruling applied to a long road like the Transcontinental and rigidly carried out would entail an appalling expenditure, and I venture to say there must be many curves on trestles on the Transcontinental. The factors in the problem are these:

The track on trestles is the best on the railway.

Additional safeguards are used on all trestles to prevent derailment, or to guide the derailed trucks over the trestle.

Wrecks on trestles are but little worse than those on high rock banks or steep, rocky side hills.

Q. No attempt is made to avoid curves on high rock banks or on steep, rocky side hills.

Q. It is impossible to avoid all or many curves on trestles.

It, therefore, is a waste of good money to attempt to avoid curves on trestles in isolated cases where the expenditure involved is large.

Mr. Gutelius:—What then is your opinion, Mr. Tye, in connection with the rock embankment at the east end of the Little Salmon River viaduct, where it was decided to construct a rock borrow embankment rather than to extend the trestle at an additional expense of $50,000?

Mr. Tye:—In the case mentioned in file 305, Salmon River viaduct, unless there are some other grave reasons for the change which are not mentioned in the correspondence, the expense involved, $50,000, in extending the trestle was simply so much money thrown away.

Mr. Lynch-Staunton:—In that case there is a curved rock embankment?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—That was put in to avoid having a curved bridge?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—Your opinion is that a curved bridge should have been put in?

Mr. Tye:—Yes, if there was a saving of $50,000 by so putting it in.

Mr. Lynch-Staunton:—In a case of a curve on a bridge, the centrifugal force you speak of is only on the side of the trestle?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—Then would there, or would there not, be a considerable increase in the cost of strengthening that bridge?

Mr. Tye:—No, the cost is not very much greater; it is inconsiderable.

Mr. Lynch-Staunton:—You have explained that in your opinion more things might happen on a curved embankment than on a curved bridge. Now I want to ask you is there any rule laid down for the guidance of the engineers of the Transcontinental which forbids them to make curved embankments?

Mr. Tye:—None whatever.

Mr. Lynch-Staunton:—You do not object to curved embankments any more than you do to curved bridges?

Mr. Tye:—No.

Mr. Lynch-Staunton:—But the engineers of the Transcontinental in allowing curves on embankments and forbidding them on bridges are illogical. That is what your statement is meant to convey?

Mr. Tye:—Yes.

VOLUME OF TRAFFIC.

Mr. Gutelius:—Your attention is directed, Mr. Tye, to blue print No. 59, which is the "Table of values for Equating Distance, Rise and Fall, Curvature and so forth," issued August 30th, 1905, signed by D. MacPherson, assistant chief engineer, and approved by Hugh D. Lumsden, chief engineer. Your special attention is directed to the note on this blue print which reads as follows:—

> "For calculating justifiable expenditure per mile, ten daily trains each way (equal to twenty trains daily) will be assumed between Moncton and Quebec, and between Winnipeg and junction of branch to North Bay. Between other points twelve daily trains will be assumed."

As an engineer, Mr. Tye, who has had to do with the construction of transcontinental railways, do you believe that the assumption of this large number of daily trains is justifiable as a foundation for these values? And you might state to us the date when, from your calculation, this number of trains will actually be run.

Mr. Tye:—In order to economically locate a railway it is essential to have a reasonably good idea as to the probable volume of traffic. There is no way in which this can be ascertained as readily and as correctly as by comparison with an established road through the same country serving the same traffic. Lying parallel to the route of the National Transcontinental is the Canadian Pacific Railway, built under very similar conditions and serving the same country and the same traffic. The amount and growth of traffic on that road furnishes the best possible guide to the probable future traffic on the National Transcontinental Railway.

1—CANADIAN PACIFIC RAILWAY COMPANY—TRAFFIC FOR YEARS ENDING JULY 30th.

YEAR	Barrels Flour	Bushels Grain	Live Stock Head	Feet Lumber	Cords Firewood	Tons M'f'd Articles	Tons all Other Articles
1898	2,911,072	37,756,201	663,773	831,895,383	185,208	1,319,827	994,813
1899	3,292,450	37,443,084	715,018	840,145,338	203,336	1,529,044	1,119,087
1900	4,005,226	42,763,253	810,559	957,702,349	202,461	1,795,663	1,461,144
1901	3,735,873	32,927,468	945,386	899,214,646	204,818	1,954,386	2,206,970
1902	4,921,993	52,719,706	963,742	1,033,569,377	204,963	2,268,234	2,571,136
1903	5,110,757	63,822,710	1,103,686	1,190,378,217	268,401	2,665,262	2,942,736
1904	5,270,432	52,990,151	1,314,814	1,267,804,321	270,803	3,119,659	3,620,515
1905	5,010,868	59,739,180	1,360,560	1,435,758,930	261,794	3,250,067	3,894,259
1906	5,994,535	82,196,648	1,428,320	1,804,648,962	264,456	3,818,625	4,098,819
1907	6,256,702	93,207,009	1,537,467	1,989,444,728	274,629	4,285,854	4,794,295
1908	5,843,988	88,345,234	1,349,771	1,764,445,459	249,605	3,981,888	5,102,116
1909	6,683,354	97,236,150	1,371,873	1,726,944,584	249,628	4,425,241	5,916,248
1910	7,489,812	112,795,345	1,381,183	2,292,821,963	280,878	5,468,548	7,567,052
1911	8,469,744	111,169,982	1,567,665	2,441,097,107	398,345	5,759,344	8,971,037

CANADIAN NORTHERN RAILWAY COMPANY.

YEAR	100 lb. Sack Flour	Bushels Grain	Heads Live Stock	Feet Logs and Lumber	Cords Firewood	Tons Fish	Cars Immigrants Effects	Cars Building Material	Tons Miscellaneous
1903	332,096	12,367,110	23,775	85,551,000	111,748				
1904	282,214	9,992,195	25,188	117,517,000	171,714				
1905	414,824	9,681,829	20,299	141,614,000	176,365	5,770	1,558	5,968	459,972
1906	483,819	16,192,502	41,588	171,636,000	175,675	3,175	2,614	8,955	559,022
1907	844,500	19,853,142	32,960	189,455,000	109,685	3,402	4,647	9,046	628,521
1908	925,798	22,456,041	44,639	206,698,000	197,633	4,435	3,383	9,432	1,133,508
1909	1,380,207	27,113,077	91,546	247,452,000	177,231	4,547	3,129	9,547	1,073,872
1910	1,789,768	37,355,010	123,635	294,647,000	189,535	282,718	5,068	21,758	889,783
1911	2,215,094	40,249,939	137,295	324,221,000	210,625	370,161	5,644	36,328	1,170,964

WINNIPEG TO LAKE SUPERIOR.

Mr. Tye:—Taking first the section between Winnipeg and Lake Superior, the annual reports of the Canadian Pacific give the total amount of the different commodities handled by that road. This is given for the whole road and not for divisions or districts. Its grain traffic, however, practically all originates in the West, and is practically all hauled from Winnipeg to Fort William; so that the amount of grain handled between Winnipeg and Fort William is a good index of the amount of traffic on that division; grain and flour probably make up half of the eastbound business between Winnipeg and the Lakes. Flour is simply manufactured grain, and all flour handled is made from Western grain so that a statement showing average growth of the amount of grain handled in the past should give a good index as to the probable growth of traffic in the future.

This statement, marked (1) taken from the annual reports, shows the different commodities handled by the Canadian Pacific for each year ending June 30th, from 1898 to 1911; and by the Canadian Northern for the years ending June 30th from 1903 to 1911.

This diagram, marked (2) shows graphically the amount of grain handled each year by the Canadian Pacific and their mileage west of Fort William. This chart shows wide fluctuations from year to year, but notwithstanding this, from 1900 to 1911 the average increase is fairly uniform, being at the rate of about eight million bushels per annum. The Canadian Northern increase from 1904 to 1911 is at the average rate of five million bushels per annum.

In 1905 the Canadian Pacific freight traffic averaged for the whole year about seven trains each way per day for the full 365 days in the year. On the same basis, the C.P.R. traffic would have been at the rate of ten trains per day in 1909. In 1905 the Canadian Pacific began active preparations for the construction of a second track.

Grain in the West is practically all grown between Winnipeg on the east and Calgary and Edmonton on the west. It is a fair assumption to say that the grain handled by the Grand Trunk Pacific and the National Transcontinental should be in the same proportion to the C.P.R. as is the mileage in the grain growing district of the one road to the other. It may be that at the present time the Grand Trunk Pacific does not haul in the same proportion to its mileage as does the Canadian Pacific, because the Canadian Pacific is more firmly established in the country; but it is a safe assumption to say that when the Grand Trunk has its connections with eastern lines which are at least as extensive as are those of the Canadian Pacific—that the whole traffic will be in proportion to its grain haul, and its grain haul will be in proportion to the mileage which it has in the west as compared with the Canadian Pacific.

If, therefore, we assume that the Grand Trunk grain haul and its traffic is proportionate to its mileage between Winnipeg and Edmonton, as compared with the mileage of the C.P.R. between Winnipeg and Calgary, the results may not be correct at the present time, but will be reasonably so in the future when the Grand Trunk has its lines connected. In 1911 the C.P.R. total mileage from Winnipeg to Calgary, including branches, amounted to 5,308 miles; and the Grand Trunk Pacific between Winnipeg and Edmonton, including branch lines, to 1,185 miles. The C.P.R. handled on the basis of their average haul, 116,000,000 bushels. This would make the haul of the National Transcontinental 26,000,000 bushels. If, therefore, the average grain haul of the Grand Trunk Pacific be taken as 26,000,000 bushels for the year ending June 30, 1911, and its rate of increase be assumed to be the same as the Canadian Pacific, the National Transcontinental traffic between

Winnipeg and Lake Superior would, as shown on the attached diagram, in 1917 amount to seven trains per day each way, of the same weight as those handled by the Canadian Pacific in 1905, and to ten such trains each way a day in 1921.

In 1905 the Canadian Pacific had not completed its grade reductions and therefore could not haul as large loads as can the National Transcontinental. Its grades, however, had been partially reduced and its trains were of a fair size. It is quite safe to assume that ten locomotives on the National Transcontinental will haul as much as could eleven locomotives on the Canadian Pacific on its 1905 basis. The National Transcontinental on the basis already assumed would have a traffic of eleven C.P.R. trains each way per day in 1922. Or in other words by the year 1922 the National Transcontinental between Winnipeg and Fort William will have a traffic equal to ten of its own trains each way per day. As the actual construction of the National Transcontinental was begun in 1905, in seventeen years from its date of commencement it will have reached the standard which has been set between Winnipeg and Fort William in these instructions. This seems to me to be a reasonable basis to work on.

LAKE SUPERIOR TO COCHRANE.

Mr. Gutelius:—What do you say, Mr. Tye, about using the same basis for these calculations on the line between Lake Superior Junction and Cochrane?

Mr. Tye:—It is considerably more difficult to decide on what the traffic between Lake Superior Junction and Cochrane will be. The cheapest and easiest way to handle traffic between the east and the west is via the Lakes. It has been proven that during the period of navigation the traffic will go by this route in preference to all-rail, and therefore during this period the traffic on the National Transcontinental will be very light. It is impossible to handle all the grain during the short period between the close of the harvest and the close of navigation, and during the winter much grain must undoubtedly go via the all-rail route.

Again comparing with the Canadian Pacific: that company started to double track its line between Winnipeg and Fort William in 1905. It is now in 1912 commencing to double track between Fort William and Sudbury, or, in other words, if it started its second track when its requirements were the same as they were between Winnipeg and Fort William the number of trains east of Fort William should now be equivalent to the number of trains between Fort William and Winnipeg in 1905; or the traffic requirements west of Fort William are seven years in advance of those east of Fort William. If the railway east of Fort William were of the same high grade as that west of Fort William, or as that constructed by the National Transcontinental, then it would be a safe assumption to say that the National Transcontinental would have seven trains each way per day in 1924, or seven years after it would have that number west of Lake Superior. The roads, however, are not in any respects of equivalent grades. The Canadian Pacific has, west of Fort William a railroad equally as good as that constructed by the National Transcontinental. East of Fort William, however, the road is not so efficient. West of Fort William it has 0.4 per cent grades. East of Fort William and between that point and Sudbury the ruling grades are at least 1 per cent. The haulage capacity of one locomotive west of Fort William on the C.P.R., or on any portion of the Transcontinental is equivalent to the haulage capacity of two similar locomotives east of Fort William on the C.P.R. The rate of growth on the C.P.R. east of the Lakes has been less than one-half as rapid as west of the lakes. Assuming this rate for the Transcontinental, the number of trains which could be handled by its locomotives on the class of road which has been built, would amount to six each way per day in 1935, or thirty years after the commencement of construction.

Mr. Gutelius:—Does the twenty trains per day assumption used in these instructions for construction values, not seem to be unnecessarily high?

Mr. Tye:—Yes, very high.

Mr. Gutelius:—What do you consider would have been a fair assumption of standard for them to use for this portion of the line in making their original calculations?

Mr. Tye:—Six trains per day each way in 1935 would be a high standard to set.

Mr. Gutelius:—So that you would consider it fair and proper to use an average of five trains each way per day, would you not?

Mr. Tye:—Yes.

COCHRANE TO QUEBEC.

Mr. Gutelius:—What would you say, Mr. Tye, about the traffic between Cochrane and Quebec and the number of trains which they should have assumed in making their calculations for that portion?

Mr. Tye:—The difference in traffic east of the Junction to Ontario and west of that point will be the difference between traffic furnished by the eastern portion of the province of Quebec and that furnished by the country between Montreal and Windsor; this difference will undoubtedly amount to one or two trains each way a day, which will reduce the traffic on the eastern end of the Transcontinental to, at the outside, an average of two and a half trains each way per day in 1924. As any grain handled by railway east of the Lakes after the close of navigation must be hauled over this portion of the road, it would hardly be advisable to construct it of a lower standard than other portions of the road.

The amount of traffic, however, will for many years be very light, and every effort should have been made east of Lake Superior Junction, and especially east of Cochrane to keep down the first cost of construction while building a road which could be improved as the traffic justified.

Mr. Gutelius:—What items under the calculations which you have suggested, assuming five trains per day, would have been affected in cheapening the cost of construction and still maintaining the efficiency of the road in the matter of train haul?

Mr. Tye:—The use of momentum grades, wooden trestles instead of high embankments, sharper curves, short tangents, and other expedients to keep down the first cost of construction were surely justified here if on any road. Such expedients do not decrease the haulage capacity of locomotives, do not increase the running time of trains, and only slightly increase the cost of maintenance; but do materially decrease the fixed charges by decreasing the cost of construction, and do permit of an improvement in standard, when required, without extra cost.

If a tonnage of six trains per day each way will not be attained for about twenty years after the commencement of construction between Lake Superior Junction and Cochrane; and about thirty years, east of Cochrane, interest charges on expenditures, which might have been deferred, will have grown enormously. At 4 per cent compound interest one dollar in twenty years amounts to $2.19 and in thirty years to $3.24. The total cost of expenditures which might be deferred would—if made when required—be not more than from one-third to one-half of what they will be with the methods adopted.

CHANGE IN GRADES OR ALIGNMENT.

Mr. Gutelius:—Referring again to Section 85 of the "Revised General Instructions to Engineers" which reads as follows:

> "Resident Engineers will not be allowed to make changes in grades or alignment but will promptly call their division engineer's attention to any possible change they consider beneficial."

Do you believe these instructions are such as should be issued to construction engineers?

Mr. Tye:—I do not believe these instructions are proper, or at least in proper form.

Mr. Gutelius:—What is your idea of such instructions?

Mr. Tye:—I believe that all engineers should be ordered and encouraged to make changes in alignment and grades where such will decrease the cost without lowering the standard, or raise the standard without increasing the cost. All changes made by them should, of course, be approved before they become effective. For various reasons it is not possible for the locating engineer to get the details of the location exactly right. The location may be an admirable one in a general way and the details approximately correct but the locating party does not have the time to make the exact cross-sections necessary to accurately ascertain the quantities in the cuts and fills. Hence the profile may look excellent but the quantities in the cuttings may not balance the quantities in the fills. If not, and it be possible to make them so, the most economical location has not been attained.

Mr. Gutelius:—Did you ever know of a residency on which the final location made by the construction engineers did not improve the line or reduce the cost?

Mr. Tye:—The construction engineer, once the right of way has been cleared, has every opportunity of ascertaining the quantity and should shift the line one way or the other so that where possible the excavation will just make the embankments. In heavy work, especially on side hill, it is often possible by changing the line a few feet only to save very large sums. When the work is opened up, cuttings which were supposed to be rock may turn out to be earth or vice versa, making a very great alteration in the quantities and necessitating a change of line in order that there may be neither waste nor borrow. The resident engineers should be ordered and encouraged to make such changes at once. As soon as a portion of the line is cleared and cross-sectioned, they should ascertain if the excavations balance the embankments; if not, and it is possible to do so, they should at once so change the line that they will. They should be vigilant in this respect until the work is actually completed. As the work proceeds, unforeseen conditions arise which make slight changes of line advisable, and the location should not be considered final and definite until the track is actually laid.

Mr. Gutelius:—Is the location on the part of the construction engineers not a fruitful source of economy in railway construction?

Mr. Tye:—There is no possible way in which an engineer can save as much money. I have frequently seen resident engineers in this way, by reducing the quantities of grading, do as much work in a day as the contractors could do in a month, and of course the cost to the railway company would be a mere fraction of a cent per cubic yard. Every engineer on the work, be he in high position, or in low, should thus be encouraged to watch for opportunities of changing the line so as to reduce the cost without lowering the standard. Fixed charges are only second in importance to operating expenses, and a change which decreases the fixed charges without increasing operating expenses is only second in importance to an improvement in the standard of construction which does not increase the cost.

Mr. Gutelius:—How would you have made these instructions read?

Mr. Tye:—The instructions should therefore have read that resident engineers should be vigilant and watchful for changes in alignment or grades that would reduce the cost without decreasing the standard of construction, or of improving the alignment or grades without increasing the cost. Such changes should, however, be approved by the divisional or district engineer before becoming effective.

Mr. Gutelius:—What saving in cost do you think could have been effected if the construction engineers had been allowed as you suggest to modify the line and grade, in the rough country traversed by this railway.

Mr. Tye:—Five, ten and fifteen per cent, depending on the character of the country.

MOMENTUM GRADES.

Mr. Gutelius:—You are familiar, Mr. Tye, with momentum grades and their use on railways of this character? Will you describe what a momentum grade is?

Mr. Tye:—Momentum grades are grades where the use of the momentum stored in the moving train is utilized to assist the locomotive. The term is usually applied to grades steeper than the ordinary maximum grade up which the locomotive could not otherwise haul a train loaded for the ordinary maximum grade. This is illustrated by the effect produced in taking "a run at the hills".

Mr. Gutelius:—Is the momentum stored in the moving train utilized on many roads?

Mr. Tye:—Yes, on practically all roads. There is no doubt in actual practice on every road in the continent that the momentum stored in the train is used to overcome grades, and that the use of such momentum is made to increase the actual amount hauled by the locomotives. The operating official if he can increase his train haul by taking "a run at the hills" will do so, and not be governed by the lines drawn on the construction engineer's profile. A very convincing instance of this was to be found on the Canadian Pacific between Winnipeg and Dexter, a point about fifty miles west of Fort William. This portion of the road was built by the Canadian Government, the location was made under the direction of Sir Sandford Fleming, the then chief engineer, and was without doubt the finest and best piece of work on the whole C.P.R. system. The country from Dexter to Winnipeg is undulating and not more difficult to secure a low grade against westbound traffic than against eastbound. Owing to the expected heavy grain traffic it was decided to use 0.5 per cent grades against eastbound traffic and 1 per cent grades westbound. The grades were not compensated for curvature. The result was long dragging 0.5 per cent grades against eastbound and comparatively short, steep 1 per cent grades against westbound traffic. The operating officials, after the road had been opened some years and after much experience and many tests with dynamometer cars, found that the haulage capacities of their locomotives eastbound and westbound were practically equal, being exactly the same on two of the sections, and only one car greater eastbound than westbound on the third section. This was caused by the fact that against westbound traffic the grades were long and not compensated for curvature; against westbound traffic they were short and could be and were operated by taking a "run at the hills". Notwithstanding the fact that the profiles showed grades of 0.5 per cent against eastbound and 1 per cent against westbound traffic the actual or de facto grades were demonstrated in practice to be equivalent to about 0.75 per cent each way. I am sure that at this time none of the operating officials of the Canadian Pacific had ever even considered the theory of momentum grades, but they got these results in actual practice and by hard experience. If momentum will be used by the operating

officials in any event (and it is undoubtedly used on practically every road in the continent), it seems silly not to apply the theory in a scientific manner on construction and take advantage of the undoubtedly large saving in construction expenses.

Mr. Gutelius:—Will the saving be large?

Mr. Tye:—The saving on a long road such as the Transcontinental will be enormous. The motion of a train represents stored energy derived from the engine or from gravitation. This stored energy or momentum represents power just as much as the energy derived from the consumption of coal in the locomotive represents power, and it is just as unreasonable not to utilize one as the other, provided that the utilization of such momentum does not entail any corresponding drawback. For example:—A train loaded for a 0.4 per cent and travelling at the rate of 30 miles per hour has enough of this stored energy or momentum, together with the power derived from the locomotive, to surmount a 1 per cent grade 3,300 feet long before its speed is reduced to 10 miles per hour. If, therefore, the conditions are such that it can be relied on that all trains can always have a speed of 30 miles per hour at the foot of such a grade, it is safe to use a grade of 1 per cent for 3,300 feet instead of the 0.4 per cent grade, the result being that at the top of this grade the speed will not be reduced below 10 miles per hour. The grade from that point on must, however, not exceed 0.4 per cent. A 1 per cent grade for 3,300 feet surmounts an elevation of 33 feet while an 0.4 per cent grade surmounts only 13 feet. If, therefore, the foot of the momentum grade is in a sag the height of the fill may be reduced 20 feet, or if the top of the grade is in a cutting the cutting may be reduced 20 feet. This is the theoretical result. In practice a factor of safety should be introduced. A lesser speed should be assumed, and the full length of the momentum grade not used; or say instead of using a 1 per cent grade 3,300 feet long, 2,500 feet only should be used, the actual saving as above being the reduction of the fill or cutting 15 feet in height. Such grades must be used with caution, and it must be definitely decided that there will be no cause to limit the speeds—no train stops, dangerous crossings, or limited curvature must be allowed within the limit of the velocity operations.

Mr. Gutelius:—These conditions, Mr. Tye, refer only to fully loaded trains?

Mr. Tye:—Yes.

Mr. Gutelius:—What precautions are necessary in connection with the location of momentum grades on a railway of this kind?

Mr. Tye:—In constructing a new line like the Transcontinental it is very necessary to ascertain in advance that no side tracks will be required for any reason within the momentum limits. Of course, it is not always possible to do this, and it is almost certain that within the course of years some of these momentum grades will have to be eliminated, because of the necessity of introducing new side tracks, or stations which interfere with their successful working. Even where this occurs the results are good, because it postpones the expenditure of a certain amount of money until actually required. As before stated, the cost of train filling can be very much more cheaply done when the road is in operation than during construction. The conditions might be such as to necessitate rock being used for filling on construction, while earth could be used after the road was in operation. Interest charges at 4 per cent add 48 per cent to the cost in ten years and 80 per cent in fifteen years.

Mr. Gutelius:—Would there be any considerable saving in cost by constructing the road with momentum grades and at the same time maintaining its efficiency?

Mr. Tye:—Taking everything into consideration, the saving in construction on such a road as the Transcontinental would undoubtedly amount to millions of dollars without in the least degrading the high character of the road.

Mr. Gutelius:—Would the use of momentum grades be a degradation of the high standard set by the Commissioners?

Mr. Tye:—The use of momentum grades would not in any way degrade the standard of the road. They would not reduce the haulage capacity of the locomotives by one ounce, would not increase the running time of passenger or freight trains by one minute, and would not increase the operating expenses by one dollar—on the contrary, they would, by decreasing the cost of construction, reduce the fixed charges and so improve the commercial effectiveness of the road.

If the result to be arrived at by the construction of the Transcontinental was to provide a means of handling traffic between the East and West, and vice versa, at lowest cost, the use of momentum grades would certainly be a means to this end, and so would be an improvement in the standard of efficiency of the road. They would certainly reduce the total cost of handling and so tend to permit of lower freight rates.

Mr. Lynch-Staunton:—Will you describe in simple language a momentum grade?

Mr. Tye:—A train running down a grade or on a level acquires a certain momentum—just for instance as a ball rolling down a slope would acquire a certain momentum. This momentum will carry the train up another grade just as the ball would roll up another slope, and the use of this momentum, together with the power of the locomotive, will carry the train up a steeper grade than the train could surmount without the use of this stored momentum.

Mr. Gutelius:—The steeper grade which is used in place of the ordinary ruling grade is called a momentum grade because the train surmounts it by the use of the stored energy plus the power of the locomotive?

Mr. Tye:—Yes.

Mr. Lynch-Staunton:—A momentum grade is the track made a little steeper in localities where we can depend upon the stored energy in the train to carry it over this steeper grade?

Mr. Tye:—Yes.

HELPER ENGINE GRADES.

Mr. Gutelius:—In your experience, Mr. Tye, of railway construction and grade revision on existing railways, you have doubtless found it necessary to provide helper engine grades or pusher grades. Please describe an engine helper grade.

Mr. Tye:—A helper engine grade or, as it is usually termed, a "pusher grade." is one so steep that the use of a helper engine is required to assist the ordinary road locomotive in surmounting it.

Mr. Gutelius:—Is it advisable that grades of this character be used occasionally on first-class railways?

Mr. Tye:—Such grades should undoubtedly be used under certain conditions. These conditions are where the cost of the ordinary ruling grade for a single engine would be so excessive as to be prohibitive, or where the elevation to be overcome is so great that the ordinary ruling grade would require an excessive amount of distance to overcome the elevation.

Mr. Gutelius:—What are the limits of an economical pusher grade?

Mr. Tye:—The rate of the pusher grade should be such as to most economically fit the country, but should not exceed the rate on which two road locomotives could haul the same train which one locomotive could handle on the ordinary ruling grade.

Mr. Gutelius:—In the matter of pusher grades on the Transcontinental, where the ruling grades eastbound are four-tenths and the ruling grades westbound are six-tenths, what rate of grade is proper for pusher grades, assuming that the pusher engines are of the same capacity as the road engines?

Mr. Tye:—Taking into consideration the fact that at times it will be necessary to haul empties eastbound and at times westbound, for 0.4 per cent ruling grades the equivalent pusher grade is 1 per cent, and for 0.6 per cent ruling grades the equivalent pusher grade is 1.34 per cent.

Mr. Gutelius:—If it should require a considerable excessive cost, would it be advisable to use flatter grades than those which you have given us?

Mr. Tye:—There is no advantage to be gained whatever in taking flatter grades than these, unless of course the conditions of the country show that a lesser grade would be as cheap to build. The lightest locomotive which it is likely would ever be used as a pusher is the ordinary road locomotive, that is the pusher will be at least as powerful as the road engine. This is a very safe assumption to make, as the pusher engine is always fresh, has a full head of steam, and having a short distance only to go need not have its full head of steam at the head of the pusher grade; whereas, the road locomotive must have its full head of steam in order to continue with the train. If a different class of locomotive were used for a pusher it would in every case be a heavier locomotive, designed for great tractive power at low speeds. This adds to the factor of safety in assuming these grades.

Mr. Gutelius:—Under ordinary circumstances, could any advantage be gained in handling passenger traffic by assuming flatter pusher grades than you have just given us?

Mr. Tye:—No advantage whatever would be gained, because an ordinarily heavy passenger engine can take up either of these grades a train of 14 cars such as is ordinarily used in Transcontinental passenger traffic. A 14-car train is certainly as long as it is advisable to handle in a single unit, and this it is shown can be hauled on a 1.34 per cent grade by an ordinary heavy passenger engine. It would, therefore, be inadvisable and unprofitable to spend additional money to flatten these pusher grades for any advantage which might be gained from passenger traffic.

TRACK LAYING CONTRACT.

Mr. Gutelius:—On the National Transcontinental Railway each chief contractor was required to do the work of track laying and ballasting on his section. There were twenty-one chief contractors. Do you believe this was good policy, if not how should the work have been done?

Mr. Tye:—I do not believe the policy outlined in your question is at all good.

Track laying, ballasting and train filling requires a very extensive and expensive outfit: locomotives, flat cars, ballast cars, boarding cars, track laying machine, and equipment for track laying and ballasting must be supplied. All of this equipment is very expensive.

Track laying, ballasting, heavy train filling and work of similar character is usually done by the railway companies themselves, or by contractors with the railway company's equipment. Therefore when the twenty-one chief contractors after purchasing this equipment have completed their contract they will find but little work for such equipment, and there will be but little opportunity for them to sell at a reasonable price. Each one will thus find himself burdened with an expensive equipment which cannot be sold to advantage, and for which there is little work to be had. Each contractor knew this before he tendered, so each one had to make his prices high enough to cover the loss he would suffer on this equipment and therefore the Commission have practically paid for the depreciation of twenty-one equipments.

The proper policy would have been to have let each chief contractor do the grading, trestles, culverts, etc., only; and to have let the track laying, ballasting and train filling separately. At the most it would have required for track laying,

ballasting, and train filling one contractor east from Winnipeg, one west from Cochrane, one east from Cochrane, one east from Quebec, and one west from Quebec, or five in all, the Commission would thus have had at the most to pay the depreciation on five outfits instead of twenty-one.

WATER SUPPLY.

Mr. Gutelius:—In the matter of water supply, Mr. Tye, we find that the Transcontinental Railway engineers erected water tanks at divisional points having a capacity of 75,000 gallons and a height of 70 feet—the object being to afford fire protection. What do you say as to the value of 70 feet head for fire protection at a divisional point?

Mr. Tye:—The theoretical pressure due to 70 feet head is 30.32 pounds per square inch. This is reduced by the friction in the pipes, bends, etc., depending upon the conditions. The effective pressure at the foot of the tank would not exceed about 28 pounds per square inch.

A fire pump costing a few hundred dollars will give much greater pressure and therefore be much more efficient in case of fire.

The cost of operation of a fire pump placed in the machine shops and connected with the water system of the yard is in case of fire practically nothing.

With high tanks there is therefore loss in efficiency and a loss in construction of the difference between the cost of the high tanks, and an ordinary tank and a fire pump. This difference would depend upon local conditions but would probably average $2,000.

Mr. Gutelius:—So that $2,000 would have been saved at each of these divisional points had they used ordinary tanks with fire pumps. What do you say now as to the efficiency of this fire service with the 70-foot tanks, generally speaking?

Mr. Tye:—There is a grave question whether these high tanks would furnish efficient fire protection. It is impossible to say without knowing the local conditions such as topography of the ground, the relative heights of buildings and tank; the length and diameter of pipes in the water system; number of hydrants; length of hose required to reach from hydrants to buildings, etc. With an effective pressure of only 28 pounds per square inch at the foot of the tower, the fire service under the best of conditions could not be good.

Mr. Gutelius:—What is considered a reasonably good fire protection pressure in cities and towns?

Mr. Tye:—From 80 to 100 pounds.

Mr. Gutelius:—So that 28 pounds would probably only give you about one-fourth as good a fire hose stream as you would get in an ordinary town service?

Mr. Tye:—Not more than that.

WOODEN TRESTLES.

Q. On the National Transcontinental permanent wooden trestles were not used. Do you know whether permanent wooden trestles have been used on other railroads of like character on the original construction?—A. I believe on every other railroad on this continent wooden trestles have been used to reduce the cost of construction.

Q. Can wooden trestles be made amply strong to carry modern locomotives and cars?—A. Wooden trestles can and are being built to carry the heaviest class of modern locomotives and cars.

Q. Are wooden trestles subject to any disabilities that make them unfit for use on a first class railway?—A. The two objections to wooden trestles for use on any railway are that they are more subject to decay than steel or concrete trestles or bridges, and they are more subject to destruction by fire.

In regard to the first, this is simply an economic question. The cost and repair can be closely estimated, and if the first cost of the trestle together with the cost of repairs and the cost of permanent roadway put in when the wooden structure is no longer fit for use, is not materially less than the erection of permanent construction or an embankment, in the first instance, it should not be used.

If the site of the trestle is properly cleared of all brush, stumps, weeds, chips, etc., and the trestle properly protected by the best system of water supply available, the danger from fire is more apparent than real. There are many, many miles of wooden trestles on this continent. Nearly every road, except the older roads with heavy traffic through old settled districts have them, and yet delays from burnt trestles are not frequent.

Q. Is there any greater danger from washouts where wooden trestles are used than where permanent construction is put in at once?—A. The danger from washouts is still more remote. There is in this respect a distinct and decided advantage in the use of wooden trestles on the original construction. In a new country like that traversed by the Transcontinental there is a dearth of information as to the rainfall, flow of water in streams, etc., and it is impossible to know the correct size for permanent structures. Unless unduly large openings are left there is grave danger of making some of the permanent waterways too small. This is especially true in heavy embankments where the use of wooden trestles would be of the most advantage. A washout in such a place is vastly more expensive and causes as much delay as would a fire in a wooden trestle. Before the wooden trestles decay, and must be replaced, there is ample time to gather information regarding the flow of streams, etc., and thus properly designing the size of the permanent structures. The danger from washouts is thus less where wooden structures are used on the first construction than where permanent ones are at once put in.

Q. Does the use of wooden trestles in the first construction materially reduce the final cost, that is, the cost when the structures have been made permanent?—A. The use of wooden structures on construction, more especially large fills where the cuttings are insufficient to make the embankments and earth or common excavation borrow is scarce, undoubtedly reduces the final cost. There are several things which make this so. It must be remembered, in order to make such an embankment during construction, a trestle is necessary. Such a trestle must be made strong enough to carry a train, so that a great part of the timber and the cost of a permanent trestle must be provided in any event.

There are not many contractors who have the necessary equipment to handle a large amount of train hauled material; moreover, this is a class of work which the large railways usually do themselves, so that after the National Transcontinental is completed the contractors are not likely to have very much use for such equipment, this means they must pay for such equipment out of the profits on the Transcontinental, or, in other words, their prices must of necessity be much larger than the cost to a railroad company.

The life of a wooden trestle is not less than ten years.

With interest at 4 per cent, $1.00 in ten years amounts to $1.48.

I understand the average price paid for rock on the Transcontinental was about $1.75 plus over-haul, or say an average of $1.80, and train hauled filling 55 cents plus over-haul or say 65 cents.

There is no doubt that train fill can be made by a railway company at 25 cents per cubic yard. Thus, if by the use of a trestle the making of a large embankment, which would otherwise of necessity be made with rock, can be postponed, the relative cost per cubic yard would at the end of ten years be:—

Original construction, cost per cubic yard	$1.80
Plus interest at 4 per cent for ten years, $1.80 x .48	.864
Total cost per cubic yard	$2.664
Train hauled material put in by railway company at end of ten years, cost per cubic yard	.25
	2.414

or a saving of $2,414 (or 9 times the final cost) per cubic yard in favor of deferring the expenditure, out of which would have to come the cost of the trestle, its repairs and interest on its cost.

If the embankment could be made by train hauled material the relative cost would be:

Original construction, cost per yard	.65
Interest for ten years at 4 per cent=48 per cent	.31
Total cost at end of ten years	.96
Train hauled material put in by railway company at end of 10 years per cubic yard	.25
	.71

or a saving of $2.414 (or 9 times the final cost) per cubic yard in favor of deferring the expenditure. Out of which would come the cost, repairs, and interest on cost of the wooden trestles.

Railway companies have found that it is a source of great economy to construct large embankments in this manner, and I am sure no long railroad has ever before been built on this continent without the liberal use of wooden trestles. I understand the Grand Trunk Pacific on its line from Lake Superior Junction to Fort William has so used wooden trestles. This branch is a part of the main line from Winnipeg to Lake Superior over which the bulk of the grain will be hauled and is, therefore, just as important as any part of the whole road from Moncton to Prince Rupert.

It is a mistaken idea of the value and use of a railway to hold that such use of wooden trestles is a degradation of the standard of the road. Any increase in the fixed charges which does not reduce operating expenses by a like amount is a degradation of the road, just as much as would be a change in the line which increased operating expenses without decreasing fixed charges. The whole aim of the Transcontinental Commission seems to have been to build the best possible road regardless of cost. Their idea evidently being that the most effective road which could be built was the one where operating expenses were the least. Whereas, in reality, the most effective road which could be built was the one where the operating expenses plus the fixed charges was the least. Fixed charges must be paid just the same as operating expenses—an extra dollar paid in fixed charges has just the same effect in holding up freight rates as an extra dollar in operating expenses.

The use of wooden trestles in the first construction undoubtedly decreases the cost without in any way decreasing the operating expenses, and therefore decreases the total cost of handling traffic and so aids in reducing freight rates.

This surely is an improvement in the effective standard of the road.

Q. The engineers of the Transcontinental advance as a reason for not using wooden trestles the fact that the prices submitted for timber were abnormally high, that they could only take the bids as submitted, and could not have them reduced. Do you believe this is a valid reason, and that where some of the prices in the lowest

tender were abnormal that such prices could not be changed?—A. It certainly would not be a valid reason where the railway is in private hands. If an unbalanced bid were included in an otherwise lowest tender by a railway company, the contractor so tendering would be asked to revise his bid in this respect before the contract was awarded him. It certainly would not be good business on the part of the commissioners to reject a tender on account of such abnormal prices. It certainly would not be good business for them to adopt an uneconomical method of doing the work because a few of the prices were abnormally high. The only good business method is to require the contractor to reduce the abnormal prices. Of course, a contractor should not be asked to change any of his prices unless he were the lowest tenderer so that no injustice would be done to any other tenderer by such change of prices.

(N.T.R. INVESTIGATING COMMISSION; EVIDENCE TAKEN AT OTTAWA, SEPTEMBER 24th, 1912, IN THE OFFICES OF THE COMMISSION.)

CHARLES N. MONSARRAT, sworn:

By Mr. Gutelius:

Q. You were engineer of bridges for the C.P.R. between what years?—A. First of January, 1903, to 1st May, 1911.

Q. And prior to that time you were engaged in bridge engineering work on the C.P.R. for about how many years, roughly?—A. Oh, about seven or eight years, and before that structural draughtsman.

Q. And you are now chairman and chief engineer of the Quebec Bridge Commission?—A. Yes.

Q. So that, during the past fifteen years, you have had to do with all kinds of bridge work on railways, including culverts, trestles, steel bridges, arches, etc?—A. Yes.

Q. Will you refer to article 153 in the N.T.R. Specifications, which reads: "Piling will be paid for under the headings of 'piles delivered' and 'pile driving'; piles delivered will include piling furnished by the contractor at the bridge site, as ordered by the engineer, and will be paid for by the lineal foot, but any lengths in excess of those ordered by the engineer will not be paid for. 'Pile driving' will be paid for at the specified rate per net lineal foot in the finished structure, and will include all work of any kind in connection therewith, but will not include the material in the piles themselves." What do you understand by that?—A. I would understand, under the heading of 'piles delivered' that the contractor would be paid for the lineal feet of piles delivered on the ground that were actually ordered by the engineer.

Q. Whether they were used in the work or not?—A. Yes.

Q. What do you understand by the term 'pile driving'?—A. I would understand by "pile driving" that the contractor would be paid for the net lineal feet of pile that would be driven and left in the work below the point at which he was ordered to cut off the top of the pile.

Q. So that all piling left in the work would be paid for as piling delivered, plus the price of pile driving per net lineal foot?—A. Yes.

Q. The portion of the piles cut off and wasted, then, would only be paid for at the price of piling delivered?—A. Yes.

Q. I have before me the sheet moneying out the tenders for District F, duly certified by the proper officers. (Tender Number 2 exhibited to the witness.) This tender shows piling delivered twenty cents per lineal foot and piling driven at 35 cents per lineal foot. Tender Number 4 shows piling delivered 25 cents per lineal foot, and piling driven (driving only) fifteen cents per lineal foot. By reference to the original tender, now shown you, sent in by the contractor, which you will note is initialled by the contractor, the Chairman and members of the Commission, you will see that opposite the tender for piling driven fifteen cents per lineal foot is written "driving only"?—A. Yes.

Q. Now, in the moneying out of these items, you will note that in tender number 2 the quantity of piling is carried through at 20 cents?—A. Yes.

Q. Also that piling driven at 35 cents is moneyed out at 35 cents?—A. Yes.

Q. In tender number 4 the same quantities are moneyed out at 25 and 15 cents respectively?—A. Yes.

Q. Which shows a difference, roughly, between the total cost of piling delivered and piling driven, on the two tenders of over $37,000?—A. Yes.

Q. Do you notice anything peculiar in connection with the tenders on these items, and the manner in which they are moneyed out?—A. Yes. It would appear to me from an inspection of the figures that the contractor who submitted tender number 2 intended his price of 35 cents per lineal foot to cover the piles both delivered and driven.

Q. That being the case, to make a fair comparison of the tenders, what would you have done, had the consideration of the tenders come before you?—A. I would have assumed that the tenderer in tender number 2 intended to furnish and drive the piles for 35 cents, and that the tenderer in tender number 4 intended to furnish and drive the piles for 40 cents.

Q. What difference do you find between the tenders from your method of computation?—A. I think that tender number 2 is $12,943 less than number 4, as regards the item of piling driven.

Q. By reference to the specification, you will note, on page 24, that prices are asked for ten different classes of concrete?—A. Yes.

Q. Item 58, concrete facing mixture, one of cement to two of sand. As a practical engineer, would you use such a facing mixture as suggested?—A. No.

Q. Why?—A. I think that you would get sufficiently good results from using a mixture of concrete, composed of one part of cement, three parts of sand, and five of broken stone, which is cheaper and makes a better job. The rich facing of one of cement and two of sand is very apt to crack.

Q. Does this diagram, clause 63, now shown to you make any difference in your evidence?—A. No, it does not make any difference. I would not use it.

Q. In the matter of prices for concrete, is one of cement, three of sand and five of broken stone more expensive than one of cement, three of sand, and six of broken stone?—A. Yes.

Q. In contract 18, what is the price given for one of cement, three of sand and five of broken stone?—A. $13.00.

Q. What is the price for one of cement, three of sand and six of broken stone?—A. $15.00.

Q. The leaner mixture is shown at the higher price?—A. Yes.

Q. If a tender of this character came before you for consideration, what action, if any, would you take, before recommending that the contract be closed?—A. I would call in the contractor, and ask him to look over his figures, and see if

he had not made a mistake in his prices for the various mixtures, as it would strike me that there must be some mistake in his putting in a figure $2.00 a yard higher for the leaner mixture.

Q. Then you would have questioned all of the contracts where the higher price was named for the leaner mixture?—A. Yes.

Q. By reference to the statement, this would have required you to question the following contracts: 18, 19, 20, 20a and 21?—A. Yes.

Q. Would it be fair for this Commission to assume that had this question been raised that the contractors would have reduced the excessive prices for the leaner mixture to the same price as the richer one?—A. Yes, I am of opinion that it would.

Q. You note from the statement that on contract 19 a price of $17 per cubic yard has been paid for 5,305 cubic yards of concrete in the construction of the engine house at Graham. When you are advised that at the time of this tender the railway had been constructed to the site of this engine house, what is your opinion of $17 per cubic yard for such concrete in position which you will note is one of cement, three of sand and six and a half of broken stone?—A. I think it is excessively high.

Q. At Graham, with the road then constructed to the site, that concrete in position should have cost how much?—A. I should consider that $12 a yard would be an ample price.

By the Chairman:

Q. What do you think of paying $20 a cubic yard for concrete in buildings, the ingredients of which concrete were one of cement, four of sand and eight of broken stone?—A. I think it is an excessively high price.

By Mr. Gutelius:

Q. You never heard of any such figures before in your life?—A. No, not for that class of work.

Q. Where would an engineer be justified in using a mixture of concrete composed of one of cement, two of sand, and four of broken stone?—A. I would consider he would be justified in using that mixture in copings, concrete deposited under water, some special arch rings, bridge seats, and in connection with reinforced concrete work.

Q. Would you have used this mixture in pedestals for steel trestles, where they were not in contact with running water?—A. No.

Q. Why?—A. I would consider concrete composed of one of cement, three of sand and five of broken stone, would be a thoroughly good material to use in such places.

Q. So that it would be fair for this Commission to assume that any one-two-four mixture used in mass concrete was extravagant?—A. Yes, I would say so in large work, where you use large masses.

Q. And by large masses you mean what?—A. Concrete walls thicker than four feet.

Q. What mixture did you use for arch rings on the C.P.R., where the arch rings were not reinforced?—A. One part of cement, three parts of sand and five parts broken stone or gravel.

Q. If the arch rings on the N.T.R. were designed for the same unit of loading as you used on the C.P.R., would not this richer mixture at extra cost be extravagant?—A. Generally, I would say yes. There might be some cases where you have an extremely large arch—I have in mind an arch at Estevan where I used it. There might be cases where you would be justified in using one of cement, two of sand and four of broken stone.

Q. But in the circular arches?—A. Generally in circular arches I would consider one of cement, three of sand, and five of broken stone, would be good for the arch ring.

Adjourned.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION: EVIDENCE TAKEN AT OTTAWA, JANUARY 9th, 1913, IN THE N.T.R. OFFICES.)

WILLARD KITCHEN, sworn:

By the Chairman:

Q. You had a contract on the N.T.R. to build 31.7 miles, being mileage 163.80 to mileage 195.58, west of Moncton?—A. I think that is right.

Q. And your work commenced just west of Plaster Rock?—A. Yes.

Q. And ended about Grand Falls?—A. Yes.

Q. The chief engineer estimated the cost of the grading of this mileage to be $2,232,891; do you think it came within that? Do you think the work was done within that estimate?—A. No, I do not think it was. We have not got our final estimates, but I do not think it was done inside of that.

Q. Your estimates to the 31st December are $3,023,784.84. Is the Little Salmon River Viaduct, in Victoria County, on your contract?—A. Yes.

Q. Who did the cement work in connection with that?—A. It was sublet to Messrs. Powers and Brewer.

Q. Do you remember the prices they got for that work?—A. No, I do not remember.

Q. You had a copy of the specification?—A. Yes.

Q. The cement used in these pedestals is described in the specification as body concrete for piers, is it not? That is massed concrete, is it not?—A. Yes.

Q. I want to draw your attention to the fact of how it is described here. It says in the specification, 64, "The concrete will consist (that is for piers) of one part Portland cement, three parts sand, six parts broken stone, or screened gravel; the same shall vary in size, the largest piece shall pass through two and a half inch rim, and the smaller may be the size of a Lima bean. In piers exposed to the action of running ice or logs, the cut waters, or up-stream corners must, if considered necessary, and ordered in writing by the engineer, be faced with first-class stone masonry, up to high-water mark, which actual masonry shall be paid for at the schedule rate for first-class masonry". That specification of 1-3-6 you knew was ordered for those piers at the Little Salmon River Viaduct, did you not?—A. When you say I know it was ordered, what do you mean by that?

Q. That it was ordered by the specification?—A. I know the specification provides for certain mixtures.

Q. You knew it provided for that; you had a copy of it?—A. If I had a copy of it all right.

Q. You knew that fact, did you not?—A. If the specification states it.

Q. If it is so provided in the specification, you were aware of it?—A. Yes.

Q. You were also aware, were you not, that under your contract, in order to vary from this specification, you should have an order to so vary from the engineer in writing; is that not correct?—A. From the engineer?

Q. Yes?—A. Yes.

Q. Now, in the Little Salmon River Viaduct, I am informed that the massed concrete, or the pedestals, was of a different mixture than that prescribed in the specification I have read to you; is that correct?—A. I understand that we have a mixture of 1-2-4.

Q. 1-3-6 under your contract was to be paid for at what price?—A. I do not remember.

Q. At $10.50 per cubic yard?—A. That is 1-3-6.

Q. 1-2-4 was to be $15 per cubic yard?—A. Yes.

Q. That means $4.50 per cubic yard difference in the price?—A. Yes.

Q. So that it cost the Commission to put in 1-2-4 $4.50 per cubic yard more than if the mixture provided in the specification had been used; is that correct?—A. Well, yes, I presume it is so, but I understand any of these mixtures might be used in the bridge work.

Q. The consequence of your using that more expensive mixture was that the concrete in that particular work cost between seven and eight thousand dollars more to the Commission; do you agree with that?—A. It cost more putting in 1-2-4 than the other.

Q. What justification was there for that?—A. The work, as I already stated, was sublet.

Q. To Powers and Brewer?—A. Yes. Of my own personal knowledge I did not know there was any change being made until the work was well under way, and then I understood that the 1-2-4 mixture was being used, as it was considered a very important structure; they did not want to take any chance of anything occurring, and wanted to make it stronger.

Q. You understood this from whom?—A. I do not know. I cannot name any person who explained it to me; it was generally understood on the work.

Q. You had not any instructions yourself from anybody to make the change?—A. No.

Q. You do not recollect having heard from any engineer why the change was being made?—A. No, nothing official, only just the rumor.

Q. You say your understanding was that the change was made because of this being an important structure, and they did not want to take any chances?—A. Yes.

Q. What sort of a river was this over?—A. It was a very small river, but very big gulch.

Q. It was not exposed to attacks from ice or water to any extent?—A. I should say not.

Q. It was simply a big bridge crossing a large valley?—A. Yes.

Q. Where there were no serious dangers to be apprehended from ice or water; is that not right?—A. Yes.

Q. You are an old contractor of many years' standing, are you not?—A. Yes, I have been contracting for some time.

Q. Could you justify that change yourself?—A. Well, I am not prepared to say whether it was justified or not.

Q. I want you to show how it could be justified?—A. Well, as a contractor, I always do as I am told by the engineers, and I do not question what they do.

Q. You are like the old soldier in the Bible, I say "Do this" and it is done?—A. I always find it is better to do that.

Q. You have a mind of your own, and experience of your own, upon which you can sometimes draw. It is not a question of obeying somebody or other. I ask you to draw on that and tell me whether there is any justification in your mind for making the change in that mixture. You would do it, if you were told to do it, but is there any justification for it?—A. I do not know, really, where the change was made, whether in the tops of the abutments, or in the pedestals, or in the shaft.

Q. It is in the shaft?—A. I prefer, as a contractor, not to give my opinion as against the engineers.

Q. You would have to go against the engineers, if you gave it at all?—A. No, I would feel like taking every precaution that the structure would be all right.

Q. If you were building it, and had to pay for it yourself, would you have used that mixture?—A. Well, if I had had a responsible engineer in charge—

Q. I am not asking that; if you were building that work, and had to pay for it yourself, would you have changed that mixture?—A. I would have made the pedestals larger if I had been building it myself.

Q. I am not asking that; we are relying on the expert for that part; I want a contractor's opinion as to the mixture?—A. I do not think, Mr. Chairman, you ought to insist on my answering that question.

Q. That it might embarrass you to answer it?—A. I do not know that it would, but I think it might place me in a false position.

Q. I infer that you would not have done so, and so conclude, unless you say to the contrary?—(No answer.)

By Mr. Gutelius:

Q. Are you familiar with the gravel and stone supplies in that vicinity?—A. Well, somewhat.

Q. Was there good sand and gravel available within reasonable wagon haul?—A. Since you have brought that to my mind, I might say that I did understand that the sand and gravel was not of the very best quality.

Q. Do you remember of their going elsewhere for sand and gravel ultimately?—A. Yes. They went to MacAdam to get sand for some structures.

Q. Do you know whether the real object of enriching this mixture was not to enable your sub-contractors to use local gravel and sand?—A. No, I do not know that of my own personal knowledge, I know they washed the sand and gravel and did the best they could to make it possible to use it.

Q. And finally gave it up?—A. I understand they used that sand.

Q. You thought they brought it from MacAdam pit?—A. For some other structures; I do not know whether they used any in that.

By the Chairman:

Q. You saw the sand and gravel there?—A. Yes.

Q. Would you swear that that was not good sand and gravel that was there?—A. I thought it was all right myself.

By Mr. Gutelius:

Q. The local stuff was all right after it was washed?—A. Yes, that is my judgment.

By the Chairman:

Q. And it would make a proper and good mixture?—A. I felt so.

Q. You have no reason to advance in your experience and knowledge why that should have been so enriched, excepting the one given, to make a sure thing of an important structure?—A. To take no chances on an important structure.

Q. But you cannot tell me what those chances were that you were paying the money against?—A. The structure was very high, and there was very great weight—the highest on the whole work; everybody was anxious there should be no chances taken with it .

Q. You cannot tell me what your subs were paid for that?—A. No, I cannot.

Q. Did you do any other cement work—concrete work?—A. Oh, yes, a lot of it.

Q. Did you change the mixture in any other places?—A. I could not tell you.

Q. You do not recall?—A. No.

Q. I want to ask you about the classification. Did you do your own grading?—A. No, sir.

Q. Did you do any of the work yourselves on this contract?—A. The ballasting and train haul.

Q. You sublet the rest of the work?—A. Yes; we might do some cutting.

Q. What did you sublet your solid rock at?—A. $1.25.

Q. And loose rock?—A. I think it was 30 cents; I think we had 35 cents for it ourselves.

Q. And your common?—A. 20 cents, I believe, and we got 24 cents for it. We had $1.49 for the solid.

Q. The train haul and ballasting you did yourselves?—A. Yes.

Q. Did you do the tracklaying?—A. Yes.

Q. Did you sublet that?—A. No.

Q. You did that yourselves?—A. Yes.

Q. Tracks and ties?—A. Yes.

Q. On our investigation, we find that you have 115,601 yards of solid rock under the heading "assembled rock" for which you were allowed $1.49 per cubic yard, amounting in all to $172,245.49, and we consider that you should not have been allowed this assembled rock as solid rock, but that it should have gone into the loose rock; and we consider that if we were classifying it in giving you your final certificate, and had been supervising this work at the beginning, you would not get that money. I should like you to tell me why you think you ought to get it?—A. Well, because I have every reason to believe it was in the work and was returned by the engineers to the sub-contractors and paid for by me.

Q. Before you go on, I am not disputing that it was in the work, but I am saying that assembled rock is not classifiable under solid rock, because it is made up of stones which are not a yard, and of other material, and there is no justification under this specification to classify stones which are not a yard as solid rock, and there is no justification of any kind to classify any material, except the stones, as solid rock; that is the reason. We say this has been hoisted out of its class. Now, assuming that it was there, as you say, why should you be paid for it?—A. Well, I presume the specification provides for it, if it is there.

Q. Did you expect to be paid under this specification solid rock price for anything that was not rock?—A. I thought the engineers had certain—

Q. Did you think you were, under this specification, to get solid rock prices for anything that was not solid rock?—A. I understand the specification provides that solid rock could be paid for that is not really ledge rock.

Q. Where do you understand that from? The specification says "Solid rock excavation will include all rock found in ledges or masses of more than one cubic yard, which, in the judgment of the engineer, may best be removed by blasting." That is all you are entitled to under that? You are not entitled to any interstitial materials?—A. I am not familiar enough with the specification to say just off hand.

Q. You do not undertake to construe the specifications?—A. No, I never could.

Q. But I ask you to say, where do you find any ground for claiming solid rock excavation for anything which is not rock?—A. Well, when the engineers go on the work and classify the work, I expect to get what they classify.

Q. Did the engineers go on this work and classify it?—A. They went on the work, and I presume they classified it.

Q. Whom did you have on the work as resident engineers? What sort of men did you have there?—A. You mean their qualifications?

Q. Were these resident engineers all experienced men?—A. No, none of them were of very long experience.

Q. Had they any experience?—A. I do not know, I am sure.

Q. Did you know of any of them who were, before being resident engineers, men of any experience?—A. I did not. I knew of some of them being on the work, but I did not know how much experience they had.

Q. Were they not, as a matter of fact, inexperienced youths?—A. I would not like to say they were, because some of them were fairly good men.

Q. Were they usually inexperienced youths?—A. They were young men, and some of them I would consider had not had very much experience.

Q. They did the classifying?—A. I understand that they did it, with the consent of the district engineer and his assistants.

Q. When you got your classification of this assembled rock, giving you material as solid rock which was not solid rock, you knew it was not right?—A. No, I did not.

Q. Why did you not? You ought to?—A. I did not think I got any more than we should have got.

Q. They gave you 115,000 yards of assembled rock. Now, assembled rock is made up of rock and clay and other stiff material. You knew you were not entitled to get solid rock for clay, did you not?—A. Well, where there is stone mixed in with it, we were entitled to that classification.

Q. As loose rock?—A. Well, it was solid rock where they gave it.

Q. You never expected to be paid for any kind of clay as solid rock?—A. Any kind of clay?

Q. Yes?—A. Well, where the specification did not provide for it, of course we would not expect it.

Q. The specification does not provide for it as solid rock excavation anywhere that you know of?—A. I do not just quite understand.

Q. You have a mass of stones, and they are lying in together and there are spaces, voids, between them: those voids are filled up with clay?—A. Or cemented gravel.

Q. Yes, and that holds them all together, and there is as much cemented gravel as there are stones; so, therefore, in 100 yards you would have fifty yards of cemented gravel and fifty yards of stone, and where is the justification for giving you anything above loose rock for that cemented gravel?—A. Well, the engineers, I presume, in charge of the work realized that the specification provided for it, and they therefore gave it.

Q. You mean the engineers gave it to you, and you do not contest the engineers; you take what they give you?—A. I am obliged to.

Q. Do you always do that?—A. Always have to.

Q. Do you say, so far as you are concerned, that you do not know anything about the specification in that regard?—A. I do not know anything about the specification at all. There is no use in me talking about the specification. Everybody interprets it their own way: never saw two men who would interpret it the same way.

Q. You do not know anything about it?—A. No.

Q. Just took what they gave you?—A. Yes.

By Mr. Gutelius:

Q. You did that because, as a contractor, you have been in the habit of receiving certain figures for solid rock, loose rock and common excavation, and you thought you would get the same treatment under this specification as you were in the habit of getting on previous work: is that right?—A. I did not expect any other treatment than the specification provided for.

Q. Did you not expect this specification would be interpreted about the same as the other specifications under which you had worked, and where you had agreed to do the work for about the same figures?—A. Yes.

By the Chairman:

Q. You told me a lot of other things I cannot get you to tell me now?—A. I just did not know the time to bring them in.

Q. We say you should not get this money. Assuming the specifications would be considered against you, is there any other reason why you should get it? —A. Well, the principal reasons, and the reasons that I count it as being a most fair thing, are that the work was all sublet; we paid the sub-contractors upon the estimates as returned; there was some difference about classifications, but there was a committee appointed, of Mr. Boullion for the Grand Trunk Pacific, and Mr. Balkam for the Commissioners; they went down and went over the work with me and other engineers; the district engineer was there at the same time, and we adjusted all the differences, and I accepted, and when I got to Grand Falls that night I saw Mr. Boullion, and asked him if I would be safe in paying my sub-contractors, if he intended making any changes in the work, and he said with two exceptions: one was a cut, and another was a little piece of borrow on Johnson's work: "With those two exceptions, you would be quite safe in paying your sub-contractors in full, as far as I am concerned". I then called up Balkam, acting for the Commission, and told him what was said, and he replied, "If Mr. Boullion is satisfied, I am; it is my classification, I stand for it. I make no change". After that took place I paid some of my sub-contractors in full and others nearly up to the limit; and, following that, the Government Board of Arbitrators came down and went over the work.

Q. Who were they?—A. Mr. Schreiber, Gordon Grant and Mr. Kelliher. They went out over the work, and looked into some of the cuttings, and heard what I had to say about it, and went away, as I understood it, feeling there was nothing further could be done, that everything had been settled.

Q. And did you ever hear complaints from this Board of Arbitrators that you have spoken of as to the classification of your work?—A. No.

Q. And is this Commission's criticism of it the first you have heard of? —A. That is your Commission here?

Q. Yes?—A. Yes. I never knew there was any question about the classification before your dispute.

By Mr. Gutelius:

Q. Did you build that dump at the east end of the big viaduct over the Little Salmon River?—A. That is, going towards Grand Falls, yes.

Q. What did you get for that?—A. $1.49 solid rock, regular schedule prices.

Q. Was there any special contract for that big rock dump, where you had to borrow the rock?—A. Yes, we had a special price for rock borrow.

Q. What was that?—A. I just cannot call to mind.

Q. It was $1.10¼?—A. Yes; I do not think any material from the east end of that work was used there; some used on the west.

Q. Was not this dump 100 feet high of borrowed rock?—A. I do not know the height of it.

Q. About 100 feet?—A. I should think it was.

Q. Did you ever in your experience know of borrowed rock to make a dump 100 feet high at the end of a bridge before?—A. No, not in my experience.

Q. As a contractor, would you not have expected that that bridge would be extended round there, to where the ordinary dump from the cutting beyond ended? —A. I thought it was cheaper to build the dump, perhaps, than put the bridge round there. I never questioned anybody about it.

Q. That would have been a reason, if they built a rock dump of that kind, because it would be cheaper, would it not?—A. It would be my reason for doing it, if I did it. There was not any other material available there, except that, at the time.

Q. Do you know how much you paid Powers and Brewer on that 1-2-4 concrete?—A. I do not remember; I am not sure of it.

Q. Do you know what percentage of the amount due them under the estimates has been paid, how much money is still due Powers and Brewer on that viaduct masonry?—A. I do not know.

Q. Any considerable amount?—A. I could not tell you on that viaduct. They had the contract for all of the concrete on our section, and there is some money retained, but I just do not know what amount.

Q. Could not give me any idea of it?—A. I should say about $10,000; I do not know definitely, but I think about that.

Q. Is there any other evidence or information which you would like to lay before the Commission, which we have not asked you for?—A. Not that I can think of now, other than, of course, there are some extras that have not been taken up yet, some extra accounts that I thought could not be taken up until we got our final estimate and I saw what was returned. They are not very numerous.

Q. But nothing that would interest us as an investigating board that you want to tell us?—A. No.

By the Chairman:

Q. Your contract began at a railway and ended at a railway, did it not?—A. Practically.

Q. So that you had good facilities for bringing in your material?—A. Yes, we had good facilities; we had to haul it 89 miles.

Q. But you had good facilities at both ends of the thirty miles?—A. Yes.

Q. And you had good roads along which to haul your material?—A. Yes.

WILLARD KITCHEN,
Contractor.

Grand Falls, N.B., Jan. 30th, 1913.

The Transcontinental Ry. Investigating Commission,
Ottawa, Ont.

Dear Sirs,—

In reply to yours of the 16th inst., enclosing copy of evidence given by me before your Commission, and in which you gave me permission to amend my evidence or give further information, I wish to say that our contract had been completed over one year and I had not been looking over specification or correspondence, and as I had no idea when going into your office that I was expected to give evidence, it appeared that I did not know very much about the work.

I wish to assure you that it is my wish to give you any and all information that I have. In answer to your question as to what justification was there for using 1-2-4? I reply that of "my own personal knowledge I did not know that there was any change being made until the work was well under way." I wish to add to that statement. As soon as convenient after my return to Grand Falls I

began looking over letters and other office information and have found the following bearing on this matter, which had entirely left my mind: on October 30th, 1908, a letter from District Engineer C. O. Foss, as follows:—

"Re material for concrete at Little River and other viaducts east of "that; I have had samples of the local sand sent to Ottawa for analysis and "tests, and the reports in every case utterly condemn this sand and forbid "its use in the important work of building pedestals for these heavy via- "ducts. Some provision will have to be made by which suitable sand can "be procured at whatever cost it may be. I exceedingly regret that the "local sand proves so unfit, but neither engineers or contractors can afford "to take chances in construction of such important structures by using any "material about the value of which there is the slightest question. Some "arrangement will have to be made before this work can be continued. I "have so instructed the division engineer, Mr. Balloch.

Yours very truly,

"Signed, C. O. FOSS. *District Engineer.*"

On November 5th, 1908, I replied to Mr. Foss as follows:—

"We have your 21 D., dated the 30th ultimo, re concrete material for "Little River and other viaducts East of that. This certainly is a very "serious matter for us and we trust that you will be able to arrange it for "us in some way so that the work can be continued, and would respect- "fully request that you allow us to use the material and make the mixture "a little stronger, say 1-2-4. We believe this has been done in other cases. "Will try and get down to see you as soon as possible as we certainly must "have this matter straightened out to your satisfaction."

On the 4th November, 1908, a letter from Messrs. Powers & Brewer as follows:—

"We are advised by the division engineer that all of the sand which "we planned on using in the concrete work at Salmon River, Graham and "Caton Brook, has been condemned as unfit for the work and it has been "suggested that we bring in sand from Magaguadavic. We are bringing "in this sand at great expense to use at Little River, but in the case of the "other work the cost of this sand would be more than doubled owing to "the long haul. At the time we contracted with you for this work, Mr. "Mitchell, in company with Mr. Balkam and Mr. Balloch, and in the pre- "sence of yourself and the writer, examined the sand at Salmon River and "Little Salmon River and pronounced it O.K., and it was mainly owing "to this sand being accepted that we entered into contract for the work. "We have had a hard season and have spared no expense to get all the "culverts finished so as not to delay the grading in anticipation of better "work on the viaducts next season. We have asked to be allowed to use "this gravel in a 1-2-4 mixture and were told that we might do so, but we "would only be paid for a 1-3-5 mixture as the price for the 1-2-4 mixture "was too high. This we consider unjust for other contractors are putting "in a 1-2-4 mixture and are being paid at their 1-2-4 prices for it. If "some satisfactory arrangement cannot be made, we would like to cancel "our contract with you."

I went to Ottawa early in December, 1908, and took this matter up with the Chief Engineer Lumsden, and he promised to send Mr. Gordon Grant to make a

report to him direct, am not positive but think Mr. Uniacke was present at this time. Mr. Grant came down early in January, 1909, went over the work with Assistant Engineer Balkam, Mr. Powers of Powers & Brewer, and the writer.

As I am not personally familiar with the estimates, I am advised by our bookkeeper that at this time returns were being made under item 59, 1-2-4, and in April, 1910, change was made to item 59A, 1-2-4 in mass, and noted on blue prints "as per circular No. 116 A" and has been continued in the estimates until December, 1912, when it was transferred to item 62, 1-3-5, arch culverts.

It now appears that we took it for granted that the Department had approved of the 1-2-4 mix, as they were returning it in the estimates and paying us monthly, and we were returning same to our subcontractors.

And in that part of my evidence where you press to know if I had been paying for the work myself, if I would have used 1-2-4 at the increased cost, and I asked you not to press for a reply as it might place me in a false position, I wish if possible to make this a little clearer. I am not an experienced concrete man, and while I have contracted for considerable in my time I have always endeavored to get good concrete men to do the work, I do not consider my judgment on a question of this kind much, if any good. And am now of the opinion that if I had done the work at my own expense and if my engineers or concrete inspector had advised me that the 1-2-4 mix was necessary, I would have undoubtedly permitted it to be used, the additional expense of a few thousand dollars would not have influenced me to take any chance on structures such as we had here, therefore I do not think it fair to me to give a pronounced opinion that might conflict with experts.

In the evidence given re classification, I wish to add that Inspecting Engineer Macfarlane and the present chief engineer, while assistant to Mr. Lumsden or inspecting engineer, each made trips over our work as I understood it, for the purpose of looking into the classification, and while we have never seen their report, we believe that they sustained the classification that was being given by the engineers in charge of the work, as no material changes were made until the last summer, about two years after this portion of our work had been completed. We understand that you then sent engineers over the work, and notwithstanding that they knew really nothing personally about the work during actual construction, they do not hesitate to reclassify the work over the heads of such men as your present chief engineer, Inspecting Engineer Macfarlane, District Engineer Foss, Assistant District Engineer Balkam, and the other engineers on the work, as well as Inspecting Engineer Bouillon for the G.T.P., all of whom saw the work in actual construction and all, with the exception of Mr. Grant and Mr. Macfarlane, saw it many times, and continually during construction.

As we understand it now, our final estimates are returned and a very considerable change has been made in the classification, and we trust that you will readily see the unfairness of said changes and issue an order to have our final estimates returned as formerly.

I wish again to thank you for giving me this opportunity of amending my evidence.

Yours very truly,

WILLARD KITCHEN CO., LTD.

Per WILLARD KITCHEN.

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION
OTTAWA, JANUARY 17th, 1913.)

Present: G. LYNCH-STAUNTON, K.C., *Chairman;* F. P. GUTELIUS, C.E.

E. F. FAUQUIER, sworn:

By Mr. Staunton:

Q. You are a member of the firm of Fauquier Brothers?—A. Yes.
Q. You are the senior partner, are you?—A. We are equal partners.
Q. Your firm have two contracts on the Transcontinental Railway?—A. Yes.
Q. Your first contract was No. 15?—A. Yes.
Q. And commencing at Cochrane it ran for how many miles west of Cochrane?—A. Practically one hundred miles.
Q. It was through a clay country, was it not?—A. Nearly altogether, yes.
Q. Do you know how many tenders there were put in for that work?—A. I think there were only two.
Q. Your tender and the Grand Trunk Pacific?—A. Yes.
Q. Your prices on that work were $1.85 solid rock; loose rock, 70 cents: common excavation, 40 cents; concrete 1 x 3 x 5, $15.00; concrete 1 x 3 x 5 in arch culverts, $16.00; concrete 1 x 3 x 6 in arch culverts, $15.50; is that correct?—A. I would have to refer to the contract.
Q. Look at the contract and see if it is correct?—A. It is.
Q. You sublet all that work, did you not?—A. Do you refer to the masonry work?
Q. The excavation and concrete work?—A. Some of that work we did ourselves.
Q. But the excavation and concrete work, grading, except the train filling, I understood you sublet?—A. Oh no, some we did.
Q. Did you sublet the solid rock?—A. That would be a hard question to answer. We did some ourselves, you understand.
Q. Do you remember the price you sublet the solid rock at?—A. You have copies, I think, of all my sub-contracts.
Q. I find in the sub-contracts that you sublet solid rock at $1.57, loose rock 52 cents, common excavation 31 cents, concrete 1 x 3 x 5 $11.00, concrete 1 x 3 x 5 in arch culverts, $11.50, concrete 1 x 3 x 6 in arch culverts, $11.25, is that right?—A. I cannot say without referring to the contracts, you have copies of our subletting prices.
Q. These figures are taken from your contract?—A. Probably they are, but I would like to verify them; the copies you have will themselves prove it.
Q. Can you verify this—the solid rock returns up to the present at 25,363 cubic yards?—A. I understand it is about 35,000 yards.
Q. And the loose rock is 1,253,395 cubic yards?—A. I cannot answer that, I would have to verify.
Q. Is that about right?—A. I cannot really say, I do not know.
Q. And the common excavation, 1,262,204 cubic yards, can you say as to whether that is approximately right?—A. I believe the two are very close to one another in regard to classification, but as to what quantities I do not know.
Q. That is what I want to know; it appears from your returns that there is about one per cent solid rock, forty-nine per cent of loose rock, and fifty per cent of common excavation on your contract?—A. This is what has been returned by the engineers so far, of course we have not been paid for it yet.

Q. But these are the returns?—A. I understand it is about that.

Q. Now Mr. Fauquier, we have had this work examined by engineers and tests made on this contract, and our engineers think that twenty per cent for loose rock is a liberal classification on this contract, what do you think of that?—A. I should think your engineers are entirely wrong. In fact, the test that beautiful engineer you had up there made cost him about $1.10 a yard, we followed him close.

Q. Tell me all you know about it?—A. I do not know anything about his tests, except in that way.

Q. I want this to go down in evidence, I want you to tell me?—A. My brother has it in the office.

Q. I am only taking your evidence now and not your brother's, and I am taking your sworn statement and I want you to tell me what reason you have for saying that the engineer who examined this work, and reports, if he does report so, that twenty per cent of loose rock would be a generous classification on your work; what reason have you for reflecting on him?—A. Well, if you want me to state my views in regard to the matter, I should say that your engineer must have found, and would find it, and any engineer would find it impossible to classify that work after it was so long completed; he went into that work no doubt with what he considered—

Q. Speak of what you know, Mr. Fauquier, and do not tell anything you are in doubt about?—A. Well, I do not know.

Q. You do not know what he did?—A. Yes, I do. I know that his first test was on a cut that when we took it out it was covered with moss, it was like a swamp. The place was so bad we had to remove our camps. A big fire came over that cut and burned all the moss off the top of the cut, and there being a perfect swamp it was impossible to get there. The drainage of this 16-foot cut all through the dried up material on each side and made beautiful arable ground, and that is where he made his test. But that was not a bit the same as when the ground was taken out.

Q. So that the ground when dried became beautiful arable ground?—A. Yes, good farming land.

Q. It was clay, was it?—A. On the surface.

Q. He ploughed that ground to a depth of five feet? Was it beautiful arable ground to that depth?—A. I do not know, I did not see it.

Q. You profess to know what the ground was?—A. I do on the surface.

Q. What do you know about the cut?—A. The cut was very hard, that same cut, and just where he ploughed Mr. Lumsden and one of the engineers, now dead, were up there on a trip—

Q. Were you with them?—A. Yes, and they were looking at the material and I said that is pretty tough, and Lumsden said he didn't think it was so very tough, and I asked someone to get an axe and I bet Mr. Reid he could not put an axe through it and he couldn't. It was hard elastic sort of gumbo.

Q. How were they taking that out then?—A. Steam shovels.

Q. Do you mean to tell me that a man could not put an axe into what you could take out with a steam shovel?—A. Oh yes, they could.

Q. Do not exaggerate your statements; you said you took a piece of it up and you bet him a quarter he could not put an axe into it and he could not do it?—A. Well, of course you could get an axe into it but he could not chop it through.

Q. Your statement was that he could not put an axe into it: do you tell me he could not do so?—A. Certainly you could put an axe into it.

Q. And where you were taking that out with a steam shovel?—A. Yes.

Q. It was, at that time, you say, a swamp?—A. My evidence is that it was covered with moss which held the water like a sponge and made it swampy and thoroughly wet.

Q. And Mr. Lumsden saw that condition?—A. Oh, yes.

Q. Mr. Goodwin, the engineer we sent up there tells me he ploughed that land to a depth of five feet without any trouble, with one pair of horses, do you doubt that?—A. I have not got anything to say about it. I do not know what he did. I say that at the time we took it out it would have been utterly impossible.

Q. By reason of what, the wet condition of the ground?—A. Yes, and the material.

Q. He made an examination in other parts of that place with the same results, did he not?—A I do not know anything about any other.

Q. Are you familiar generally with the country up there?—A. Yes, in a crude way.

Q. There is no difference generally speaking in the material throughout that clay belt there?—A. Oh yes, there is.

Q. Will you tell me what difference there is between the line immediately east of and the line immediately west of Cochrane?—A. There is more muskeg I think east than there is west.

Q. There is a great quantity of muskeg in your contract, is there not?—A. No, there is not. There is a great quantity of surface muskeg that has no depth.

Q. What I mean is; this forty-nine per cent of common excavation is mostly muskeg in your contract, is it not?—A. I should not think so. The muskeg was not very deep and then we got into white clay, and in some places the white clay was filled with small stones underneath the muskeg.

Q. You say that the character of the country is not very much the same on all these contracts immediately east and west of Cochrane?—A. No, I should not think it was. All districts vary, even in our own contract they vary.

Q. Oh, yes, I know they do vary, but the main characteristics of the country are the same; it is really a clay country, nearly all through there, is it not?—A. I understand. I do not know whether I am correct or not and I have no reason to say so, but I understand that east of us they have a great depth of muskeg and more quantity of muskeg in that way.

Q. Excepting, perhaps, as to the relative depth of muskeg, the country is about the same, is it not?—A. It is practically a clay belt mixed up with muskeg, if that is what you mean; that is about as far as I can describe it.

Q. That is what I mean. Did you acquire any gravel pits or borrow pits personally along this road?—A. My brother acquired some which we used.

Q. Why did your brother acquire borrow pits there?—A. We had to get them to do our work.

Q. Why had you to get them?—A. Because the engineers of the commission did not.

Q. Did the engineers ask you to get them?—A. No, we asked them to get them.

Q. You asked them to get borrow pits for you?—A. Yes.

Q. Whom did you ask?—A. I do not know, I would have to look it up and see what correspondence we had. I cannot say as to that now, it would be in the head office.

Q. It is all in correspondence, is it?—A. I do not know.

Q. So far as you know, it is?—A. I should judge there would be some correspondence about it, but I do not know.

Q. At all events the commission did not ask you to get any borrow pits?—A. No.

Q. Then your position is that you requested the commission to furnish you with borrow pits, is that right?—A. Yes.

Q. And that the commission neglected to do so?—A. Yes.

Q. You did not head them off and get these borrow pits before you got your contracts?—A. No.

Q. You did not head them off and get these borrow pits before they had a chance to get them?—A. They never had a man up there to discover these pits.

Q. You did not take time by the forelock and get in there first?—A. No, sir, we had a man up there busy all the time scouring that country looking for pits.

Q. Did you just do what the other contractors did, look for the borrow pits?—A. We are not supposed to.

Q. I know you are not and I am wondering at your generosity?—A. It was forced on us.

Q. Did not you do just what the other contractors did?—A. I do not know what they did.

Q. When did you begin work on that first contract of yours?—A. Well, it was practically somewhere about the fall, about September or October, September I should judge, 1908. I do not know exactly. The contract was signed some time in 1908.

Q. But by June, 1909, you had not done very much work?—A. Oh, yes.

Q. Had you worked through the winter?—A. Oh, yes, we worked all winter. In June, 1909, we were laying tracks and ballasting.

Q. You commenced in the autumn of 1908 and you had done a substantial quantity of work by 1909?—A. Yes, we worked all through the winter. We were instructed to by the engineer; we worked through frost and all.

Q. You say that you only got out these patents and leases for the borrow pits because the Commission did not furnish you with them?—A. Yes.

Q. How much money did you spend on that work?—A. That is a matter that is not going into evidence.

Q. It is a matter you are going to tell us, Mr. Fauquier?—A. All right, I shall not just now without consulting my solicitor.

Q. You had better consult him, because you have to tell me?—A. I do not feel that I should.

Q. Then we will have to adjourn until you make up your mind and we might do it as well now as any other time?—A. All right.

Q. We will adjourn until you make up your mind, because we want that evidence?—A. I know what you want it for; I suppose there is some catch about the investigation.

Q. There is no catch about it but we are going to have this evidence?—A. Well, I do not know anything about it myself.

Mr. Gutelius:—Then I think it would be better for you to say that you do not know?—A. I do not know, but if I did know I would not tell it.

By Mr. Staunton:

Q. Then, if you are going to put it in that way, you had better find out if you do not know?—A. The man handling this matter for me is Mr. Nesbitt and I suppose you do not object to my having a few days to consult with him. I do not want to give any information that might be brought up against me afterwards if we had a controversy about that.

Q. I want the information, and that is what we are here for?—A. Then I would like to have it adjourned.

Q. It is adjourned if you so desire?—A. I do not desire it, except to say that I don't answer, I do not know.

Q. Then you had better make up your mind whether you will answer or not?—A. I say I do not know.

Q. It is your business as a witness to furnish yourself with the information, we want you to furnish yourself with that information?—A. Very well.

Q. On the understanding that we will adjourn the enquiry for that purpose, I will go on with something further . . . . you have made a claim or you intend to make a claim against the Commission for gravel taken from these pits, have you not?—A. I suppose so. I have got to get paid for it in some way. We have either got to make a settlement with the Commission or charge so much a yard.

Q. But you made no bargain with the Commission?—A. No.

Q. Wait a moment; you made no bargain with the Commission to pay you for this material?—A. Not that I know of.

Q. You got a patent from the Ontario Government for several parcels of land for which you paid $1.00 per acre, is not that correct?—A. I do not know. I am conscientious when I tell you that I know nothing about it.

Q. You only paid the ordinary Government fee?—A. Of course, our expenses were heavy.

Q. I mean, outside of that?—A. I do not know, I cannot say.

Q. Who does know?—A. You can find out of course; my brother would know, he has the record of it.

Q. There is no use my asking you unless you are prepared to give the facts about this transaction and can say what negotiations or what communications there were with the Commission respecting borrow pits; are you familiar with the facts? —A. No, I am not.

Q. Well, we will ask your brother about that?—A. I know this far, that we had made an application in what form, whether verbal or written, I cannot remember now.

Q. Your brother is the one who can give the information?—A. I do not know whether he can give any more on that point than I can.

Q. Can your brother give information about the licenses and patents you obtained from the Ontario Government?—A. No doubt he could, he would know more about it than I do. I do not know the cost or anything else.

Q. You do not know whether or not there was any understanding with the Commission about paying you for it?—A. Paying by the yard?

Q. Yes, or in any other way?—A. No, that was only very lately put before them. They asked us to put in our bill for ballast pits and we put that in at so much a yard. We sent it in to Mr. Balkam.

Q. You had another contract, No. 18, had you not?—A. Yes.

Q. From about nineteen and a half miles west of the crossing of the Mud River, easterly seventy-five miles, is that right?—A. That is about right, I do not know exactly.

Q. There were seventy-five miles in District E?—A. Yes.

Q. Do you know that if the engineers had not made an absurd mistake, as to the quantity of moss in that country, that your tender would not have been the lowest?—A. I have been told so.

Q. Moss is easily removed?—A. Yes.

Q. Yet the engineers estimated that there were 655,000 cubic yards of moss in there, was there any such quantity?—A. I do not know that we were allowed anything for moss.

Q. You were allowed 13,000 yards?—A. Yes.

Q. And that was about all the moss that was on the right of way?—A. I think so.

Q. Your price on that contract was 12 cents for moss; do you remember that? —A. I think it was about 12 cents. On looking at the tender, I find it was 12 cents.

Q. And Chambers tendered at 35 cents for moss?—A. Yes, it was an absurd price. Chambers told me he tendered at somewhere about that, and that is all I know about it.

Q. Your tender was $1.80 for solid rock there?—A. Yes.
Q. And for loose rock, 60 cents?—A. Yes.
Q. And for common excavation, 38 cents?—A. Yes.
Q. And Chambers tendered for $1.75 solid rock, 65 cents for loose rock, and 31 cents for common excavation?—A. I do not know as to that.
Q. And if it had not been for the moss, he would have got the contract?—A. Possibly.

By Mr. Gutelius:

Q. Had you any knowledge or do you know whether your brother had any knowledge that there was any such large amount of moss being estimated upon?—A. I think I had, but I cannot tell you how I gathered it, or how I knew.
Q. Do you mean it is impossible for you to tell us?—A. It is impossible for me to trace back how I got it. I got it from some of the junior engineers. I was enquiring about the whole contract and one thing and another, and I got the information.
Q. I want you to make your position as clear as you can?—A. I had the advantage of that knowledge; I do not mind acknowledging it; I do not want to husband it up in any way.
Q. And the fact that you tendered 12 cents on moss——A. I would have tendered that anyway.
Q. At all events, it gave you the contract?—A. Yes, but I should have tendered about twelve cents on moss, whether I knew it or not. You know yourself that it is easy to remove moss.
Q. But you did have knowledge that there was going to be a large amount of moss figured on that contract and you rather expected it?—A. Yes.
Q. And you knew when your bid was going in that your moss bid was going to get you the contract?—A. I expected it would be very favorable.
Q. Was much of the clay which was classified as 50 per cent loose rock excavated by steam shovels on this contract No. 15?—A. The proportion was very small, I should judge.
Q. About what yardage was the steam shovel capable of handling in an ordinary ten hour shift?—A. I have forgotten; it is one of those automatic sixteen ton or twenty ton.
Q. What would be a fair day's work average in that material?—A. I cannot tell you exactly. I should think that in good material it should handle 250 yards.
Q. You in your final estimate have received something like 6,000 to 8,000 yards of solid rock which was classified because of its being small stones closely assembled, what is called "assembled rock" in the estimates?—A. Do you mean in our work?
Q. In your work?—A. I do not know; I do not know how they classified it. I was never with them when they classified. I thought it was all solid rock we were allowed for, but you say there is a certain amount of assembled rock.
Q. Do you think, as a contractor, that any material composed of stones less than a cubic yard, and sand and clay mixed in with it, should be called solid rock under that specification?—A. If it is cemented, I should think it would be hard-pan, but if it were frozen I should say it was solid.
Q. You would only make solid out of it if it was frozen?—A. If it is cemented it would be blasted continually and it is the same thing.
Q. If the cemented material did not have any stones in it, and you shot it, what would you call it?—A. There are a good many different kinds of cemented material, do you mean cemented sand?

Q. Cemented sand and clay if it did not have any stones in it, what would you call it?—A. That would be open to quite a lot of argument because you can get it cemented when it is very easily handled.

Q. Did you ever get solid rock for this stuff they call assembled rock on any other contract you were ever on?—A. I do not think so.

Q. This is a new proposition?—A. Yes; my specifications in the other contracts were for solid rocks or boulders measuring over a cubic yard.

Q. When you made your tender did you expect that solid rock was going to be the same solid rock that you as an engineer and contractor had been handling in previous contracts?—A. No, because I read the specification and the other specifications run differently.

Q. That is argument, but it is facts we want. Did not you expect when you made your tender on these specifications to receive the same treatment in the matter of interpretation from the engineers that you had been in the habit of receiving on other contracts?—A. No, I could not have done so because the specifications were different and worded differently. The specifications of the different materials were different.

Q. Did you put in a lower price for rock, than you would have put in on that account, did you reduce your rock price?—A. No, I got every cent I could possibly venture to ask without competition knocking me out.

Q. Then the interpretation which you contend for did not influence you in making your bid?—A. No, in the first place, on the contract you are referring to now, I never expected any very large quantity of rock. Of course, the estimates of the rock on that line were something like 250,000 yards or over.

Q. How did you know there was an estimate of that kind?—A. I got a copy of the estimate after I got the work. They gave me estimated quantities. I think I got them from Mr. Lumsden. Certainly, I got them from one of the engineers; anyway, I wanted to see what the total would be.

Q. What was your reason for asking Mr. Wallace Nesbitt for an opinion on this clause of the contract?—A. On account of the frozen material.

Q. Did you lay Mr. Nesbitt's opinion before the Commission or the engineers?—A. I showed it to our particular commissioner; our particular commissioner was Mr. Reid. I showed it to him and Mr. McIsaac and Mr. Lumsden, I think. I showed them the written opinion. In the same way, I had one from Shepley, Chrysler, and Arnoldi.

Q. You laid all these opinions before the Commissioners or the engineers?—A. Yes.

By Mr. Staunton:

Q. Why did you go to all the expense and trouble of getting so many opinions on this?—A. We intended to fight it out, and I have not abandoned the idea yet.

Q. Then the Commission was disputing your right?—A. The right to frozen material. In the first place, the Commission or the engineers on the line allowed it in Mr. Lumsden's reign, and then later Mr. Lumsden cut it more than in half, anyway he cut it down to $25,000. During the dispute I got these opinions in order to try the influence of laying first-class legal opinions before them to influence them to reinstate that, and they did not do it.

Q. Did they take all the frozen material from you?—A. Yes, I understand so.

Q. They did not allow you anything for frozen material?—A. I understand not.

Q. And you got these opinions to fortify your case before the Commission?—A. Yes.

Q. Did you get any opinions on any other matters excepting the frozen materials?—A. I cannot tell you offhand, I do not remember now. Of course, when they entered into the classification of frozen material, they entered into the whole classification of these three items: solid rock, loose rock, and common excavation.

By Mr. Gutelius:

Q. Referring again to that moss contract, was it generally understood between the contractors and the Commission that the estimate on which they would money-out the tenders was private information of the Commission?—A. It was not given to us for the purpose of tendering and so forth; we were not allowed to see that.

Q. So that if anyone had been given that it might have influenced their bid?—A. Certainly it would, very materially.

Q. In other words, you would be very glad to have had that private information?—A. I think anyone would. You are enough of an engineer to know that yourself.

By Mr. Staunton:

Q. It would be quite improper to give it to one person and not to another?—A. Certainly.

By Mr. Gutelius:

Q. You happened to secure this information because you were chasing up and down the line and heard in a general way what the boys were doing, that is right, is it?—A. Yes.

Q. Is there anything that has occurred to you that you would like to tell this Commission?—A. Excepting that I might tell you about that letter. There is a letter in existence which in my estimation would make my estimate final as I have paid the subcontractors on the classification as made, on the estimates which were marked "final" by the district engineers or division engineers, I am not sure which. The letter to which I refer and which caused the issue of these final certificates was one written by Mr. Grant in the spring of 1911 to Mr. Molesworth at North Bay, instructing him to issue these certificates as there would be no revision of classification on that work. The letter is every bit as strong as that. On the strength of that letter, I paid my subcontractors on these estimates.

By Mr. Staunton:

Q. Your firm is the firm of "Fauquier Brothers"; you and your brother constitute the firm?—A. It is not called Fauquier Brothers, it is E. F. & G. E. Fauquier.

Q. Was anyone else ever in partnership with you?—A. Do you mean at previous dates?

Q. Yes?—A. On work we did in 1884 there was Mr. Denwoody.

Q. Have you ever had any person else interested with you in a monetary way in the contracts on this Transcontinental Railway?—A. No.

Q. No person else?—A. No.

Q. No person had any direct or indirect interest in your contract?—A. Not the slightest.

Q. Did the profits go to you and your brother?—A. Equally.

Q. And to nobody else?—A. No, if we ever get them.

The Witness:—I would suggest in reference to the question as to the borrow pits that you should ask my brother without recalling me on that question, as I have no personal knowledge of it.

Mr. Staunton:—Yes, we will agree to that, but tell your brother to come prepared to give us the information.

The witness was not further examined.

Ottawa, January 22nd, 1913.

E. F. & G. E. Fauquier

Statement of Expenditure re Locating Ballast Pits.

Pit No. 1— Mile 104	$ 500.00
Pit No. 2— Mile 112	200.00
Pit No. 3— Mile 160	515.00
Pit No. 4— Mile 160	1,015.00
Pit No. 5 & 6—Mile 160	1,123.75
Pit No. 7— Mile 184	2,714.40
Travelling expenses, etc., G. E. Fauquier	2,000.00
	$8,068.15

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION. OTTAWA, JANUARY 31st, 1913.)

Present: G. Lynch-Staunton, K.C., *Chairman*; F. P. Gutelius, C.E.

Reid McManus, sworn:

Examined by Mr. Gutelius:

Q. You had a contract for about eight miles of the construction of the National Transcontinental Railway between mileages 52 and 58 west of Moncton?—A. Yes.

Q. Who constitutes your firm?—A. It is two brothers of mine, Edward E. McManus, and John W. McManus.

Q. And no one else is interested?—A. I have another brother, he is partly interested, but he is studying for the Church, and he has not been interested in our workings.

Q. The peculiar features of the portion of the railway which you constructed seem to be a cutting from mile 50 to mile 52, which cutting is nearly two miles long; you are familiar with the ground there?—A. Yes.

Q. Did that long cut strike you as being a peculiar bit of location?—A. No. I never looked at it from that point of view; you are speaking to me now as from the engineering point of view.

Q. No, as a contractor, from your commonsense knowledge of railway location, did you figure that it was necessary to undertake a cut two miles long at that part?—A. Can I explain that?

Q. Yes, take your time and explain it?—A. I never gave it any consideration when we tendered on the work, and it was a year or so before we started to operate on that cut. We commenced at the small operations, I do not think we touched it at all the first year we were working. I never gave that question any consideration.

Q. Did you ever before take out a cut two miles in length?—A. No.

Q. So that it was very unusual..... did you utilize all that material for fills or was much of it wasted?—A. It was practically all used.

Q. What was the greatest haul that you gave any of that material?—A.

You can see by the profile. There is a small fill before you go into the cut and a part of the cut was borrowed and brought to contract No. 1. The balance was hauled to Chipman to make that fill across the bridge.

Q. So that the material which was taken across the bridge at Chipman was hauled how many miles?—A. About four and a half miles, I should think.

Q. What did you receive for hauling this material that long distance?—A. I got train haul price, as over-haul for that portion of the cut, as far as I know.

Q. What was your train haul price?—A. Thirty-eight cents.

Q. And what was your price for common excavation?—A. Twenty-one cents.

Q. And what was your price for loose rock?—A. Fifty cents.

Q. And your price for solid rock?—A. $1.50.

Q. So that the material in the big fill at Chipman would cost for earth fifty-nine cents and for loose rock eighty-eight cents?—A. The first part of the fill put in was put in from the west side from the borrow pit there about mile 59; we borrowed off the Toronto Construction Company's work about 40,000 yards.

Q. What I am referring to is the cost to the Commission of that portion of this big fill at Chipman which was hauled from the two mile cut at Mile 51; whatever you hauled down there would cost what?—A. The excavation price plus the thirty-eight cents.

Q. Which is common excavation, fifty-nine cents; loose rock, eighty-eight cents; solid rock, $1.88?—A. Yes.

Q. What proportion roughly was hauled down there from the big cut?—A. I think there was about 150,000 yards and perhaps more, I cannot say exactly as I do not remember.

Q. Anyhow you think there were over 100,000 yards?—A. Yes, over 100,000 yards.

Q. Did you grade the Y at Chipman?—A. Yes.

Q. Where did the material for that come from?—A. Some of it was borrowed right in the Y and some of it came from the first cut out from Chipman.

Q. But no considerable quantity of this Y grading came from the big cut?—A. No, the Y was practically completed before we opened that cut at all.

Q. In looking over the Y at Chipman I was surprised to find that you made such a long Y, do you know any reason why they should not make a Y there with an ordinary 10-degree curve?—A. I never gave that any consideration.

Q. The Y now is of such curvature that you could run it at thirty miles an hour without any trouble?—A. Yes, one leg is nearly straight.

Q. And the other is ordinary curvature that is used on main line track on many railways?—A. On many railways, yes.

Q. How did they happen to let an eight-mile contract when the other contracts were all for greater mileage?—A. Only from what I heard that they let fifty miles, and when they came to sign the contract. . . .I understood though, when the contract was asked for, that the work was to extend to Chipman, and then when the notice said only fifty miles they ended their contract there which was six miles out of Chipman.

Q. So that it was a remnant that was not covered by the larger contracts?—A. I understood that the Grand Trunk Pacific or the contractors who had the contract for the fifty miles, asked the Commission that they take eight miles more, expecting they would get it, and give them access to the works from each end.

Q. But for some reason or other they stopped back at the fifty miles?—A. Yes.

Q. And that left this eight mile piece?—A. Yes.

Q. Did you have much trouble in getting this contract?—A. They asked for tenders.

Q. Did you have any trouble about it?—A. We tendered and found we were the lowest. Then some of them discouraged us, they thought we were too low and then Corbett & Floesch offered to buy us out.

Q. But you concluded to do the work yourselves?—A. Yes.

Q. I see that the original estimate amounted to $289,000, what did your last estimate show?—A. $587,000.

Q. Do you know Mr. McManus, why there was such a great difference between the original estimate and the final estimate? Do you know where that difference occurred?—A. I do not know, I did not see any first estimate, but I understand that the engineers did not estimate any rock in that eight miles, that is my understanding of it.

Q. You have no idea of the quantities the engineers figured in their original estimates?—A. No.

Q. Is there any other reason why the contract should have practically doubled the estimate?—A. I do not know unless it was mainly due to classification.

Q. And by that you mean that there was more rock discovered when the cuts were opened than they expected?—A. Yes.

Q. How did the final classification compare with what you expected for your different prices, did you get all the loose rock that was coming to you?—A. I do not think we got all the solid rock that was coming to us. Some of that which we called solid rock they gave as loose rock, but I think our classification was a very fair one. We were continually fighting for more classification and as we had differences with our engineer from the start we thought we were not getting sufficient.

Q. Is not that always the case on contract work with the contractors?—A. I do not know as to that.

Q. The contractors are always trying to get the best classification they possibly can?—A. Yes, that is natural.

Q. That is considered good business for a contractor?—A. Yes.

Q. But there is not anything that stands out particularly in your mind as to which you got higher classification than you thought was coming to you?—A. No.

Q. You said a moment ago that you should have received more solid rock, what do you mean by that?—A. There was one cut in this work that the ledge overlaying what they called loose rock, ordinary material; the ledge was over the top of the cut, they called it indurated clay and gave us loose rock or hardpan. We claimed that as the rock formation was on the top, we should have rock to the bottom of the cut.

Q. Regardless of what material was underneath?—A. The rock was there first.

Q. But you didn't fight that very hard?—A. I tried to get it.

Q. I can understand, but you did not have a great deal of heart to try to make solid rock out of indurated clay?—A. It was kind of marl or fireclay. We had to blast it to take it out, but the moment you laid it in the air, it slackened like lime.

Q. Then, they did not make any mistake in classifying it as loose rock, that was low enough?—A. Oh, yes, it was low enough.

By Mr. Staunton:

Q. You have a claim, Mr. McManus, for overhaul on ballast?—A. Yes.

Q. What grounds do you base that claim on?—A. According to our contract as I understand it, the Commission furnished us with ballast pits on the work. There were no ballast pits within reasonable distance from our eight miles, and so we hauled ballast from the North River pit, and I had a verbal understanding with Mr. Foss, the district engineer, that he was going to pay us one cent a yard overhaul beyond the five miles.

Q. The same as is done in overhaul for borrows?—A. Train haul overhaul yes.

Q. The clause in the contract is 228 of the specifications, and it reads:—

"228. The land for ballast pits and approaches thereto will be furnished by the commissioners and approved by the engineer. In selecting land for this purpose, a preference will always be given to those points where the best material can be procured within a reasonable distance as determined by the engineer. During the working of any pit, should the material be found unfit for ballasting, the engineer shall compel the contractor to close such pits and open others. The cost of clearing land for ballast pits outside the right-of-way and grading and laying the main branch track to pits (but not sidings in same), shall be paid for according to the general schedule of prices."

Now, clause 225 reads:—

"225. Ballasting will include the loading, hauling, unloading, alongside of track, and transportation of all material hauled by train for the purpose of ballasting the track, said material to be duly accepted as ballast by the engineer. Ballast shall consist of broken stone, gravel, or coarse sand, approved by the engineer."

The item in the Schedule is No. 75:—

"75. Ballasting—no overhaul allowed."

Now, those are the only clauses that I find in the contract referring to the subject, and I would like you to explain to me, if you can, how you came to infer that the Commission was bound to supply you with a ballast pit on the ground?—A. It says: "Where the best material can be procured within a reasonable distance as determined by the engineer."

Q. It says "Preference will always be given to these points where the best material can be procured within a reasonable distance as determined by the engineer." Certainly, the preference would be given if there are any such, but where there are no points where you can get ballast within a reasonable distance, you must still get ballast, must you not?—A. Well, I did not talk to Mr. Grant very much about it. I understood that he and Mr. Foss had a discussion about that, and I understood that we were entitled to a certain overhaul for ballast as it was costing us as much or more than we were getting for the delivery on the ground.

Q. As a fact you say there was no ballast along your contract?—A. There was no ballast along our contract.

Q. And you had perforce to bring that ballast to your contract how many miles?—A. Forty-five miles before we entered on our contract.

Q. Forty-five miles to the commencement of your contract?—A. Yes.

Q. So that some of it would be hauled over fifty miles?—A. Yes fifty-three miles, the average was about forty-nine miles.

Q. Do you know what that ballast cost you?—A. I cannot tell you.

Q. Did you never make a calculation?—A. I was figuring it as we went from day to day, you have the force accounts, and I think it is all there.

Q. But it cost you more than forty cents?—A. More than forty cents. You see we hauled it in the fall of the year and we could not leave the trains loaded over night. We hauled the most of it in November and December and we were afraid it would freeze on the trains if we left it over night.

By Mr. Gutelius:

Q. How many yards did you haul for the eight miles?—A. I think about 30,000 yards.

By Mr. Staunton:

Q. Have you any written promise from the engineer?—A. No, it was put in one estimate or two estimates. We got it one month in the estimate, that was the December or January estimate, and then in the spring of that year it was taken away from us again; it was cut out altogether.

Q. How much money do you think you will lose by it if you are not allowed? —A. I think the estimate is $6,800 for overhaul.

Q. It means $7,000 to you?—A. Yes, but that was only on part of it; we were allowed $7,000 on the overhaul for one month.

Q. Did you draw any surfacing from there?—A. I do not know, I do not think so.

Q. There is a clause here which allows you for surfacing:—

> "224. Surfacing 'B' will include the cost of all train hauled material under the track, surfacing, lining and all other work incident to the preparation of the track for running work trains where surfacing is done with train hauled material other than ballast. The surfacing must be kept up with the track laying as far as possible. All new tracks must be brought to surface and tamped up before it is run over. Rails that are damaged by reason of neglect on the part of the contractor will be replaced at his expense".

A. The contract we were working on we surfaced with sand from Chipman.

Q. You have a small allowance made to you for what was called "assembled rock", 600 yards on the eight miles, do you know what assembled rock is; did you get an allowance on indurated material, clay and small stones put in as solid rock?— A. I do not know. In certain of the cuts this sandstone would throw out as boulders but it was in flakes and it would show out on the side of the cut as rock.

Q. Show out on the estimates as rock?—A. No, we made a claim for that but I do not know how much we got.

Q. Have you not heard of this discussion about assembled rock?—A. Is that in reference to that blue print of Mr. Lumsden's?

Q. Yes?—A. Yes, I heard of that.

Q. Did not that assembled rock go down to your line at all, did it appear on your contract, to your knowledge?—A. Not that I remember.

Q. Did you, or did you not, try to get from the engineers small stones and cemented material in combination passed as solid rock?—A. No.

Q. Then if you are given stone smaller than a yard and cemented material as solid rock, it was not through any effort of your own that that was called solid rock? —A. The only claim I made was for what we usually call boulder measurement, that would show up in the cut as ledge.

Q. It is sandstone?—A. Yes.

Q. Why did you try to get that in as boulders?—A. It would show up in the face of your cut perhaps four or five feet wide and a few feet high, and go along five or six feet and disappear altogether. There would be nothing to show after the work is finished that there had been any rock there at all.

By Mr. Gutelius:

Q. These were all pieces of rock larger than a yard that you claimed boulder measurement for?—A. Yes.

Q. And if the pieces were smaller than a yard you knew they were loose rock? —A. We made a claim for it.

By Mr. Staunton:

Q. You made a claim for big or small?—A. No, not for small.

Q. That country down there has no hard boulders in the work; what you see all through the place was little junks of hard sand?—A. No, it was sandstone.

Q. Well, of sandstone through the sand?—A. No, it was in hard material, hard clay material.

Q. But you got allowed as solid rock those pieces of sandstone that were less than a cubic yard?—A. I do not know.

Q. Were they not generally less that a cubic yard, you got 610 yards of assembled rock and 94,000 yards of solid rock—in that solid rock how much of this sandstone was there?—A. It was practically all sandstone formation there.

Q. I do not remember seeing any stone there that was not sandstone; was it not all fragmentary sandstone?—A. It was ledge.

Q. It was not ledge as spread out beyond your contract?—A. Do you mean beyond the sides of the cut?

Q. Yes?—A. Oh yes, it was ledge.

Q. Where did you get the small fragments?—A. There are certain of the cuts there that were clay and through these cuts you would find that sandstone.

Q. Did that wandering sandstone amount to much?—A. Apparently, it was over 600 yards; there was quite a bit of it.

Q. There was not quite a bit of it that was over a yard?—A. It laid along in trenches, I can show it to you on the work a good deal easier than I can explain it to you.

Q. The point I am asking you is, was it in large or small pieces?—A. It was not in large pieces but I think there were pieces as large as this desk, over a yard.

Q. You say most of it was over a yard?—A. I cannot say that.

Q. Were the pieces of fragmentary sandstone small pieces, generally, or were they large pieces over a yard generally?—A. I cannot answer that, I do not know.

Q. From what you saw, what do you think?—A. I think we are entitled to all we made claim for.

Q. That is not the way I am asking you, were you entitled to all you were allowed?—A. I do not know.

Q. You may not have claimed it, they may have put it in under a misapprehension or under a misconstruction of the specifications; and Brer Rabbit he say nothing: may not that have been the result?—A. I do not know.

By Mr. Gutelius:

Q. You did not get all you claimed?—A. We did not get all our claims.

By Mr. Staunton:

Q. Of the sandstone?—A. Of the ledge as boulders.

Q. Did you ever get a copy of the opinion of the Minister of Justice on your claim for overhaul of ballast?—A. I don't remember that we did.

Q. Were you informed that he had given an opinion stating that you were not entitled to it?—A. Yes. I think that is the reason we did not get it.

Q. Had you any understanding, verbal or otherwise, with the engineer before you hauled this material, that you would be paid for overhaul?—A. Yes, we had.

Q. What was that understanding and with whom was it?—A. Before I hired the outfit, that is the engines and cars to haul this ballast, I had a talk with Mr. Foss and I asked him if he was to pay for overhaul on the work, and he said: Why certainly, the same as train haul, as I understood it, and as he awarded it to us on the first estimate.

Q. You were paid, you told Mr. Gutelius, for train haul in certain cases . . . . . the common excavation price plus the train haul material price, were you not?—A. Yes, as the train hauled material price was considered as overhaul.

Q. Now when you take out common excavation, your labor in connection with it is to remove it from its place on your carts and then dump it either on the way or as waste?—A. Put it in the dumps or waste, yes.

Q. Now in train hauled material, your contract is to remove that from its place, put it on the train, and haul it and deposit it along the way?—A. To make up fills, yes.

Q. Your price for train-hauled filling is 38 cents. Now, if it became necessary to use trained-hauled material, you would have to go to the ground, dig it up, put it on the train and haul it five miles for 38 cents and there deposit it on the road, is not that right?—A. Yes.

Q. Now why should you be paid the two prices?—A. You see the fill was across the river over at Chipman. To make up that fill they would have to go on to the west side as the borrow and the material we had to borrow was a hard kind of material. It would cost them more money than to pay us the overhaul price plus excavation price from the cut.

Q. But the point I make, Mr. McManus, is this: it makes no difference where you get the train-hauled material, whether it comes out of the line itself or out of the ballast pit, your labor and expense are the same, that is, if the borrow pit is as close as the place where you take it out of the line cut?—A. Yes.

Q. As a fact you contracted with the Commission for 38 cents, plus mileage for material carried by train and deposited on the line, did you not?—A. Yes.

Q. And you contracted with the Commission for material which is known as common excavation moved on the line for 500 feet at 21 cents?—A. Yes.

Q. Now, if you had not train-hauled that common excavation, you would have had to move it for 21 cents?—A. I would have to move it from this cut in the spoil pit and then I was entitled to a cent a yard for every one hundred feet beyond the 500 feet haul.

Q. Let us study that out. . . . you have, we will say, 1,000 yards of common excavation that you have no use for and that you propose to move into the spoil bank and that spoil bank is within 500 feet of the place where you were taking it out of the line cutting. Now then, the engineer comes along and says: Mr. McManus, instead of depositing that in the spoil bank, carry it down the line on the train forty-six miles and deposit it on the line. You carry it down the line. The only extra cost you are put to is for hauling it by train that extra distance, is that right?—A. Yes.

Q. Then they give you 38 cents for material, hauling that on the train five miles, because all the other expense you were put to anyway, is common excavation?—A. Yes.

Q. Now, what justification is there to give you 38 cents for hauling it that distance?—A. I do not know. From the understanding of my contract I could pull it out on to the spoil bank and they could borrow to make a fill on the other side.

Q. But they could come to you and say: Mr. McManus, we want you to take that out as train haul, we won't allow you to spoil that?—A. Then I guess they would have to pay me extra as train-hauled fill.

Q. They would pay you just on the train-hauled fill alone. The material removed by you is called common excavation when it is taken out and moved along within the 500 feet and deposited on the track or put in the spoil bank. The material is called train-hauled when it is put on the train and moved by the train. That is the only distinction between the two?—A. No, as I understand your contention there would be no classification in any cut, you would not be able to make any classification of loose rock or solid rock in a cutting?

Q. No, I say that any material that is carried by train is train-hauled and should come under that heading, but why you should drag in the other heading and put them both together, I cannot understand. You see the train-hauled filling, as interpreted by me, in this specification is for any extra filling to bring your cuts up to grade. You get a price for the train-hauled filling, but your line cuts have got to be excavated any way as classified. Therefore, if they make you haul line cuts anywhere, they are supposed to pay you one cent a yard for every 100 feet over 500 feet. When they make your haul five miles from the line cut they said the overhaul clause would not cover it and they made the other arrangement.

Let me read this, clause 224 X reads:—

> "224 X. Where there is not sufficient material suitable for making embankments by men and teams within reasonable haul, of which the engineer shall be judge, and it becomes necessary to make use of the track laid at the expense of the commissioners to haul material for such purpose by train either for the widening of embankments to their full width or raising them to their full height, or for the purpose of filling temporary trestles the contractor will have the use of the commissioners' rails, fastenings and necessary switches for such purpose, it being understood that the track-laying will only be paid for once by the commissioners, and that any damage to rails, fastenings, or switches while in such service shall be paid for by such contractor to the commissioners, or the commissioners may deduct it from the monthly or final estimate due, or to become due to the contractor. The price given in the schedule for such train-hauled filling shall include the cost of all temporary trestles which the contractor may require, which he shall erect according to his own plans and at his own cost and risk, and all tools, plant, material and labor necessary for the loading, hauling, putting in place and trimming, as directed by the engineer. The limit to which the contractor will be called upon to haul such train-hauled filling at the price stated in this schedule will be five (5) miles; beyond such distance a price of one cent (.01) per yard per mile will be paid him, the measurement of such haul being made to the nearest mile, one-half mile or over counting as a full mile. Measurements of all train-hauled filling will be allowed on train-hauled filling from borrow pits."

Now, that applies, without any exception, to all material which you put on the train and haul, does it not?—A. No.

Q. I would like to know why it does not?—A. You see the line cuts are taken out with a steam shovel and trained. The stuff you load from these cuts on the train would not be termed train-hauled filling, but the excess, to make up the rest of your dump, after you borrow outside of your line cuts, would make your train-hauled filling.

Q. But all the material which you call train-hauled filling is material that you take out of its original position, put on the train, and haul to a given point. Now, you have to bear all that expense for thirty-eight cents, but when you take it out of the line, you say: now, I will charge for the common excavation price and I will also charge for the train-hauled filling price. So you are paid for taking that out of the ground and moving it by your trains twice?—A. No.

Q. Start from the other end of it. . .the line excavation is your classified material and your common material, you have to excavate your line cuts. If you move that 500 feet you get overhaul, if you move that up to 4,300 feet you get 38 cents in regular overhaul price. In this train-hauled filling you charge for

the train-hauled full price and the common excavation price. Why don't you also charge the common excavation overhaul price, too? I don't see if you get one why you should not get the other. You are getting a double-headed charge for this anyway?—A. No, I am not.

By Mr. Gutelius:

Q. Is there anything which as a contractor you would like to lay before this investigating committee that has not been brought out in the questions so far?—A. Can I add a reference to pipelaying. They made a unit charge at so much a yard and so much a running foot for laying pipe, and they gave us an extra work order to do it. Then, since we finished our work they took and changed it all back into common or line cutting price.

Q. The price you thought you were getting for these ditches was considerably higher than your line-cutting price?—A. Yes.

Q. Did you get a work order which showed what those ditching prices are to be?—A. Yes.

Q. And that paper was signed by whom?—A. I do not remember, you have it here, probably the chief engineer, it came from Mr. Foss.

Q. And in good faith you carried out the work expecting you would receive a higher price?—A. Yes.

Q. And after the work was finished?—A. They changed back to line cutting price.

Q. Do you remember what these ditching prices were?—A. We had, I think, 50 cents for common excavation, $1.00 for loose rock, and $2.00 for solid rock, together with the price of common excavation, 21 cents for back filling.

Q. And you were given that on your progress estimates?—A. Yes, we were paid, and it has been taken away from us. They have changed it back to 21 cents for common, fifty cents for loose, $1.50 for solid in trench, and back filling 21 cents. I think that the pipe-laying should be the same as foundation excavation price if we laid the pipe under the track. If we laid the pipe under the track, twenty-four inches or any kind of an outlet, with a culvert pipe, we would be paid foundation excavation price for that. Now they take us off the main line out into the woods about 800 feet and they expect us to do it for the ordinary line cut price.

Q. This was a waterpipe line?—A. Yes, for the tanks.

Q. At what station?—A. At Chipman.

Q. Did you do this with your own force account or sublet it?—A. We did it with our own force account.

Q. How much money roughly was involved in that reduction?—A. $2,000 or $3,000.

Q. And that is a claim that is now before the Commission?—A. Yes.

Mr. Gutelius:—I think I may say that justice will be done you when the matter is finally settled.

End of examination of witness.

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION.)

OTTAWA, JANUARY 23rd, 1913.

Present:—G. LYNCH-STAUNTON, K.C., *Chairman;* F. P. GUTELIUS, C.E.

JOHN D. MCARTHUR, sworn:

By Mr. Staunton:

Q. You are the J. D. McArthur of J. D. McArthur, Limited, are you not?—A. Yes.

Q. Who are your associates in that company?—A. There are two or three boys in my office.

Q. It is just a one-man company?—A. Practically.

Q. Has any person got any substantial interest in the company except yourself?—A. No.

Q. What is the capitalization of the company?—A. One million dollars.

Q. Do you own the whole million dollars' worth of stock?—A. Except just two or three shares.

Q. I understand you to mean that the other members of the company are mere nominal shareholders?—A. Yes.

Q. You wrote a letter to the late Mr. S. R. Poulin, district engineer of the Transcontinental Railway, dated at Winnipeg, February 10, 1910, in which you state that you are in receipt of estimate sheet for the months of January and February (1910); these sheets show deductions to the amount of about $185,000 from notes and estimate sheets; these deductions are made by the order of the chief engineer and we presume the reduction is made for overbreak; we consider this question of overbreak settled at a meeting held in Kenora on February 8, 1907, when Mr. Lumsden, chief engineer, Charles Young, one of the commissioners, and all the divisional engineers were present; the matter was gone into fully then and Mr. Lumsden agreed to allow overbreak as solid rock. Now, was that letter written by you, Mr. McArthur?—A. I think that was written by the engineer.

Q. It is signed, "J. D. McArthur & Company, by R. A. H."—who is he?—A. R. A. Hazelwood,

Q. He was your engineer?—A. Yes.

Q. You say that letter was written by him?—A. It was written by him, I believe.

Q. Were you present at Kenora at that meeting?—A. Yes.

Q. Will you tell us from your recollection who were there?—A. The chief engineer, Mr. Lumsden was there, and Hodgins, the district engineer, and the divisional engineers, A. G. Macfarlane, and McIntosh, and Reehan, and another; the divisional engineers were there anyway.

Q. What was the meeting called for?—A. The meeting was called for when the men that were doing the work were complaining that they were not getting their estimates for the overbreak.

Q. A complaint had been made then by the contractors or sub-contractors?—A. Well, from the subcontractors to the contractors.

Q. That they were not getting a just allowance for overbreak, is that it?—A. That they did not get anything in their monthly estimates for overbreak.

Q. And this meeting was for that purpose?—A. For what purpose, for the purpose of discussing that question?

Q. For the purpose of discussing and settling the overbreak?—A. Yes.

Q. That was in February, 1907, how much work had been done at that time?—A. I cannot tell you offhand.

Q. I am only asking you approximately, because we have the record?—A. It was certainly small, compared with the total work.

Q. Only a small amount of work comparatively speaking had been done then?—A. Yes.

Q. And you met there for the purpose of discussing and arriving at some understanding with respect to overbreak. Was that the idea?—A. Yes.

Q. What happened at the meeting?—A. That was discussed and settled.

Q. I want you to tell me the discussion; I want you to tell me what occurred, we will draw our own conclusions, did you say anything?—A. No, I do not think I did.

Q. You had no complaint then personally?—A. Not as much as the men who were doing the work.

Q. Who made any complaint?—A. All the other contractors.

Q. Tell me one?—A. There was Chambers Brothers.

Q. What did Chambers Brothers say?—A. They wanted to pull off the work.

Q. What for?—A. On account of that they would not get any overbreak. If that were continued they would have to throw up their job.

Q. At that time, as I understand you, the engineers took the position that the contractors were not entitled to any overbreak, is that the point?—A. That they didn't have any instructions.

Q. To allow any overbreak?—A. To allow any.

Q. And none was being allowed?—A. None was allowed.

Q. Then you say there was a general complaint that there was no overbreak allowed?—A. Yes.

Q. What did Mr. Lumsden say?—A. Mr. Lumsden gave instructions to Major Hodgins to allow overbreak.

Q. Did he give him a standing order to allow overbreak, or what occurred —A. As I understood, it was left with the resident engineer.

Q. To do what?—A. To use his judgment.

Q. That was not giving him any more discretion than he always had: he was to use his judgment in any case?—A. Yes, but still he had no authority to return any overbreak.

Q. Then you say that Mr. Lumsden gave him instructions to use his judgment, that does not carry us any distance?—A. To pay for overbreak and return it in the estimates.

Q. Return what overbreak?—A. Whatever he thought was just. The road could not be built unless it was allowed.

Q. You had a contract yourself with the Government for building a portion of the road?—A. Yes.

Q. Now, in that contract, your allowances are provided for: what you are to be paid for is provided for in that contract, is it not?—A. Yes.

Q. And you and the subcontractors were claiming you were entitled to overbreak?—A. Yes.

Q. And Mr. Lumsden told the engineer, as I understand you now, to make you such allowances for overbreak as you were entitled to under the contract?—A. I do not think it was put in that way.

Q. If you will not tell me what his words were, I will try and suggest to you what appears to be the natural thing for him to do. I would like you to tell me what occurred. You make certain statements in this letter and I want you to tell me what was your understanding of what occurred at that meeting?—A.

I am just trying to tell you that what occurred at that meeting was that they came to a conclusion they would pay for overbreak and they instructed the engineers to return it in the estimates and pay for it.

Q. Were you to get all the overbreak you had, no matter under what conditions it was made?—A. That was left for the engineer.

Q. To find out what was proper?—A. Yes.

Q. If you were to put in outrageously large shots and piled up large quantities of overbreak that were improper and unnecessary, do you think he had instructions to allow you that?—A. That was some years ago and it was on a work that I cannot account for at all; I was not there when they were working.

Q. I am not saying the contractors did so, but I want to know whether Mr. Hodgins had instructions from his chief to allow you unnecessary overbreak?—A. I do not think he put it in them words.

Q. Would the chief engineer's words lead anybody to conclude that that is what he did?—A. No.

Q. He was to make proper allowances for overbreak, would not that be the way to put it?—A. As I understand overbreak, that occurs and it cannot be accounted for till it happens, slides in cuts, you take a shot and there will probably be fifty yards slide down at the side of the cut.

Q. That is slip and slide?—A. Yes.

Q. That was what he was to allow?—A. That was what he was to allow.

Q. You see the word "overbreak" is not used in the contract, that is a term that contractors and engineers use, but the word itself is not used in the contract. But in Section 37 of the specifications, it says:—

> "37. Material in slips, slides and subsidences extending beyond slopes in cuttings will not be paid for unless, in the opinion of the engineer, such occurrences were beyond the control of the contractor and not preventable by use of due care and diligence."

You are familiar with that section?—A. I am.

Q. The contractors were contending that on the contract there was material which came within that description, not allowed for, and they called it overbreak, is not that right?—A. Yes.

Q. But it was not contended that the engineer should allow something that was not authorized by the contract, was it?—A. Well, it was left with the engineer.

Q. To use his judgment and make such allowances as were proper under that clause?—A. Yes.

Q. Now if the contractors put in unreasonably large shots and blew out unnecessary quantities, you would not expect to be allowed for that, would you?—A. No, I think they tried to protect themselves from anything of that kind.

Q. You would not expect that to be allowed if the shots were unnecessary and unreasonably large quantities were thrown out?—A. Well, that is a question that comes under the heavy shots: I do not know whether they were heavy shots or not.

Q. We are not talking about what occurred on the work, I am talking about what occurred at this meeting: did Mr. Lumsden tell them they were to allow the contractors where the shots were too heavy and the material was unnecessarily blown out?—A. I do not recollect that being discussed.

Q. I should not have thought it would have been, but you say the contractors contended they were entitled to be allowed for overbreak under the contract and they were not getting it?—A. Yes.

Q. And instructions were given by the chief engineer to the district engineer to give them proper allowance?—A. The pay for overbreak was left to the engineer as the best authority to say what he thought was just.

Q. Is that all that occurred at the meeting?—A. That is all, that is what the meeting was for, that was the grievance.

Q. You say in this letter that overbreak was to be allowed as solid rock?—A. Yes.

Q. You know how the overbreak under the contract is to be classified, do you not; it is to be classified as in the condition in which it falls into the cut after the shot, that is right, is it not? Section 38 of the specifications says:—

"38. The classification of material from slides shall be made by the engineer, and will be in accordance with its condition at the time of the slide, regardless of prior conditions."

A. That is just in slides and slips.

Q. Yes, that is to say that where there is a slide or a slip he is to go and look at the material after the slide or slip and see whether it comes within the solid rock or the loose rock class, and allow accordingly, is not that right?—A. Yes, of course there might be some loose rock come from the top of the cut you know, very often there is two or three feet of material or more, like that.

Q. So that he should not allow solid rock for small stones under a yard, should he?—A. Oh yes, we never expected but what we would get paid for anything that was all rock, even though it broke very small. It was solid rock in the first place and it was broken up. There might not be a yard in it after it was broken up.

Q. Why should you be allowed for that, when the contract said you should not?—A. It cost us more money to handle it than if it was two yards or five yards.

Q. Why should you be allowed for it when the contract said you should not?—A. There was only a small percentage of that.

Q. Whatever percentage there was under a yard in size, all these pieces of rock should be put in as loose rock, should they not?—A. I do not think it should.

Q. How do you get around the contract?—A. I do not know how you are going to get around it or anything of that kind, I am just speaking as a contractor moving rocks which cost me more money to move it.

Q. It may have cost you more money, I do not know anything about that, but when you make a bargain that states definitely that slips and slides must be classified in the shape in which they exist after the explosion, you surely do not expect it to be classified as it existed before the explosion?—A. I do.

Q. Notwithstanding the contract?—A. Notwithstanding the contract.

Q. You are an old contractor, are you not?—A. That is what they say.

Q. Were you ever on this contract yourself?—A. I must say that I was not.

Q. Did you do any of this rock work yourself?—A. No.

Q. Sublet it all?—A. Yes.

Q. You made contracts with your sub-contractors for this work in writing, did you?—A. Yes.

Q. Were those contracts similar to the contracts you made with the Government?—A. Yes.

Q. So that the sub-contractors had only the same rates as you had?—A. That is all.

Q. And they were only entitled to have slips and slides classified as against you in the same way as you were entitled to have it classified as against the Government?—A. Yes.

Q. I suppose that you have studied this specification?—A. No, I think not.

Q. Have you submitted it to your lawyer for advice on its meaning?—A. I have, this last eighteen months, when the work was finished.

Q. You knew though, at the Kenora meeting, that up to that time somebody thought you ought not to get overbreak?—A. That was the attitude that the engineers took.

Q. I thought at that time you submitted it to your Winnipeg lawyers, I think I saw a letter about it, Mr. Wilson was your lawyer in Winnipeg?—A. Fisher Wilson, yes.

Q. Did you not submit it to them at that time?—A. I might have done that, but I cannot tell you offhand.

Q. Fisher & Wilson did write the Commission for you, did they not?—A. Yes.

Q. Do you remember what they wrote about?—A. I do not.

Q. Who were your sub-contractors who were interested in the overbreak?—A. Chambers Brothers and McCaffrey, W. A. Dutton, it was Dutton & McArthur, but Dutton was really the man.

Q. Is McArthur, J. D. McArthur?—A. No, another one. There was Guy Campbell, Olsen & Larsen, and Wardrope, and James Walsh. and Anderson Johnston, and then there was what they called the Eastern Construction Company. That was the bulk of the contractors.

Q. Have you settled with these people?—A. No, there are four or five I have not settled with.

Q. Have you settled with Chambers?—A. No.

Q. Have you settled with Dutton?—A. No.

Q. Have you settled with Campbell?—A. No.

Q. Have you settled with Olsen?—A. No.

Q. Have you settled with Wardrope?—A. Yes, I settled with him.

Q. Have you settled with Walsh?—A. Yes, he is settled with.

Q. Have you settled with Anderson & Johnston?—A. No, they are not settled with.

Q. Have you settled with the Eastern Construction Company?—A. No. There is a little fellow named Charlie Patterson.

Q. Is Patterson settled with?—A. No.

Q. There are eight of them outstanding?—A. Yes.

Q. Have they large claims against you?—A. Yes.

Q. Have you settled with them for this overbreak?—A. I settled with them all along as we were getting our monthly estimates.

Q. I know that, but did you settle with them all along, because they would have only 10 per cent left if you did?—A. That is all they have.

Q. Do you mean to say that these men have got all that is coming to them except the 10 per cent hold back?—A. Do you mean the estimates with the arbitrators' cut?

Q. No. I asked you if you paid them the estimates to date for the whole claim?—A. I have.

Q. From these estimates were deducted what you call the arbitrators' overbreak, was it not?—A. No.

Q. They didn't allow that to them?—A. Yes, in the first estimates.

Q. Have they been all paid by the Government for that overbreak?—A. Yes.

Q. That is all paid?—A. Yes.

Q. And what claim they have now is the 10 per cent hold back?—A. Yes.

Q. That is the whole matter?—A. Yes.

By Mr. Gutelius:

Q. And the amount deducted from them by the arbitrators.

By Mr. Staunton:

Q. Have you paid the amount of the arbitrators' deduction?—A. Yes.

Q. So that the sub-contractors have no claim whatever against the Government except for the final ten per cent?—A. That is all.

Q. I want to understand this, let me put this question: The arbitrators were Mr. Grant, now chief engineer of the Transcontinental, Mr. Kelliher, chief engineer of the Grand Trunk Pacific, and Mr. Schreiber?—A. Yes.

Q. When did they go over the work?—A. About two years and a half ago.

By Mr. Gutelius:

Q. Was the work about finished at that time?—A. When they went over for the last arbitration, the work was just about finished.

Q. The rock excavation was about completed?—A. Oh, yes, that was completed. I thought you meant the whole line.

By Mr. Staunton:

Q. That was the second arbitration. they took about $400,000 off you?—A. Yes, more than $500,000.

Q. Which they said was not properly allowable under the contract?—A. Yes.

Q. The arbitrators went over the ground before that?—A. Yes.

Q. Who were they?—A. The same parties.

Q. When did they first go over the ground?—A. I think it was in the spring of 1909.

Q. What did they do that time?—A. They went over the work but there was no report and no deduction came in.

Q. Did they direct that deduction should be made?—A. I do not know that, I never was notified.

Q. Did the engineers act differently after the arbitrators went over the first time?—A. No.

Q. Was the work all done then?—A. Practically.

Q. You say all this work was completed before 1909?—A. A very great deal.

Q. The rock excavation?—A. Yes.

Q. Now, after the second arbitration, the Commission cut your estimates so as to deduct from you the amount the arbitrators said you were not entitled to?—A. Yes.

Q. And that amount has never been paid you?—A. They took off a percentage.

Q. And an amount equal to their deductions is being retained from you?—A. Yes. they kept my percentage back and cut this overbreak off it.

Q. What you say is that they went on paying estimates up to that time and that you got allowed overbreak without any deduction?—A. Yes.

Q. The arbitrators then came along and said, it is not proper to make allowances for this overbreak and they took off $400,000 from you?—A. Yes.

Q. And that is what you are objecting to?—A. Yes.

Q. Now, the engineers in the field did not deduct anything for overbreak?—A. Oh yes.

Q. Did they in the beginning?—A. No.

Q. They allowed you all the overbreak that occurred on the line?—A. I expect they did.

Q. Have you ever seen that work yourself?—A. Not very much while they were grading it.

Q. Have you seen it since?—A. Yes, I have been over the lines since the rails were down.

Q. There are some pretty wide cuts on it?—A. Yes.

Q. There is a lot of waste is there not?—A. Very little waste.

Q. Do you remember District F, Mile 5.8, Residency 19, just near the junction; here is a picture which shows an enormous piece of rock which stands

out of the ground about 18 feet and blown out into the side, don't you think it would take some shooting to do that?—A. Is not that more than five miles from the junction?

Q. It is over five and a half miles. Do you remember that big monument there?—A. Is there a ravine running below?

Q. Yes?—A. That was on Swanston's work.

Q. I do not know whose work it is on?—A. There is a cut down there, but I thought it was further west of the junction.

Q. Don't you think that would take a lot of shooting to throw that out?—A. Yes.

Q. Do you think they ought to get allowed for that?—A. If it is the cut I have reference to, but I thought it was further west on the line than that, if it is the cut I have reference to, you have seen it, Mr. Gutelius, it is a big cut and there is a ravine away below it.

Q. Here is the cut with the ravine below it, it is another picture?—A. That is the only thing I objected to on the line, was that one.

Q. But this big one here, didn't you object to that?—A. I must say that I cannot recollect that.

Q. You can see the size of that stone by comparison with the size of the persons standing around and the trees, could you think there is any justification for blowing a great big stone like that from the side of the cut?—A. It depends on how it was lying, very probably; it might be that it could not be moved or touched at all without throwing it there.

Q. It is not a boulder though, it is ledge rock?—A. Side work is different.

Q. This is not side work, it is right out of the cut, you would not expect that fellow to come out would you?—A. I would suppose they would adjust it as they were going on with the work.

Q. If by putting in big shots they did throw stuff up like that, do you think it should be allowed if the material was required in adjoining fills; that is clean waste of overbreak. I do not mean in the cut, clean waste of the overbreak?—A. That is the way I feel about it.

Q. Do you think that should be allowed?—A. No, that should not be allowed.

Q. And what would you say about that at Mile 24.6?—A. That is the ravine I refer to. I would say that certainly should not be allowed. That was intentionally done.

Q. Now, the arbitrators made these deductions because they thought it was improperly done?—A. I do not know what their intention was, I did not take any part in it at all.

Q. Do you think that three gentlemen of their standing and experience would make a deduction of nearly half a million dollars for unnecessary overbreak, if there was not some very good reason for it?—A. I claim that it was not all unnecessary overbreak, that it went into the work.

Q. But Mr. McArthur you could not go over that work as a fair-minded man and say that there is not unnecessary overbreak, could you?—A. I think there is very little overbreak there but what was used.

Q. I am not speaking about whether it was used or not, could you, as an honest man say, with your knowledge and experience as a contractor, that there is not a great amount of unnecessary overbreak on that contract?—A. At first we were pushed with the work.

Q. We will come to that after. I will give you a chance to show excuses for it, but I ask you a straightforward question as an honest man, and an experienced contractor: can you say that there was not a large quantity of unnecessary overbreak on that contract?—A. Well that is a question that creeps in in the answering of it, right with another, and that is that a lot of that overbreak was done because it was wanted in the work.

Q. That is a matter for us to discuss afterwards.

Mr. Gutelius:—He could answer yes, and then say that they expected to get paid for it because they were going to use it in the fill.

Mr. McArthur:—That is correct.

By Mr. Staunton:

Q. Then, if it was not to be used in the fills, you admit that there was a lot of unnecessary overbreak?—A. What is that?

Q. Suppose they did not want to use it in the fills, would there be any justification for the great quantities of overbreak there were in that contract?—A. Of course that is a matter of engineering and how this rock lay.

Q. It seems to me it was a matter of engineering by the fellows who were putting in the shots. I am asking you that question and I want you to give a candid answer. If there had not been any use for that overbreak, would there have been any justification for the great quantity that is there?—A. You are talking about shots now, and that is a thing I do not know anything about. I never saw a shot in my life.

Q. You have great contracts and you are a contractor of great experience?—A. The men were on the work and the men doing the work had a great deal more experience than I had.

Q. You have been on work in your time?—A. I was not on this work.

Q. You have seen a lot of work done?—A. Most of my work was dirt work.

Q. This contract shows over 40 per cent and 50 per cent of overbreak. Was there ever on the American continent such great quantities of overbreak as on this road?—A. I do not know that.

Q. You cannot point me to any other similar case, can you?—A. I do not know.

Q. If you don't know, who would, can you justify this overbreak on any ground, except that it might have been wanted in fills?—A. That is the point.

Q. What do you say about that point?—A. I say if it was wanted in the fills, that would justify it so far as the overbreak was concerned, and it would remove any objection to paying for it, if the rock was wanted.

Q. But if the rock was not wanted and you had to pay for it, there would be a strong objection on your part?—A. If the rock was not wanted, there is room there for an argument.

Q. What do you mean by saying there is room for an argument?—A. If there was a case of overbreak from heavy shooting, and it was thrown out at the end of the dump and wasted.

Q. Then it ought not to be paid for?—A. I mean it should not probably be paid for at the rate per yard that we were getting, unless it was slip and slide.

Q. Oh, yes, of course. What is a reasonable percentage of overbreak?—A. I do not know.

Q. You do not know?—A. No, I do not.

Q. I am told that about 12 per cent is a reasonable percentage for overbreak, what do you think of that?—A. I do not know; I never had that experience.

Q. These three arbitrators ought to know, ought they not?—A. They ought to know what?

Q. What is the fair allowance?—A. Well, the overbreak was there. Of course, I do not see how they could come in at that stage of the game and cut down so much overbreak.

Q. Why should not they; they saw the cuts?—A. Yes.

Q. And they saw the rock that was taken out?—A. Yes.

Q. And they saw the condition in which the cuts were left?—A. Yes.

Q. Now, these men know how that kind of rock should be treated, don't they?—A. Well, it is the men that are on the work; they know the conditions at the time.

Q. Yes, but conditions don't change in rock you know. People may say they change in earth exposed to the air, but rock is everlasting and stays the same, does it not?—A. Yes.

Q. Now then, a man that is going to put a shot in, when he looks at the rock that he is going to blow out, he ought to know about how much powder to use?—A. They claim they do.

Q. And if he ought to know before he puts in the shot how much powder he should use, surely great engineers like these men should know how much powder should have been used on that amount of rock?—A. I do not know if these men, even if they had experience, had ever done any of that class of work themselves.

Q. But should they not know? Mr. Kelliher is chief engineer of the Grand Trunk Pacific and has had large experience, has he not had?—A. I do not know what experience he had before he came on the Grand Trunk Pacific, but he has had a large experience on the Grand Trunk Pacific, there is no question about that.

Q. Mr. Grant has been a railway engineer for twenty-five years?—A. Yes.

Q. And he has had large experience?—A. Yes.

Q. And Mr. Schreiber is I suppose one of the oldest and most experienced engineers in America?—A. He is one of the oldest.

Q. He has had great experience has he not?—A. Yes.

Q. These men are fair-minded men are they not?—A. I do not know.

Q. Why should they be prejudiced?—A. One reason why they should be prejudiced, a man like Mr. Kelliher he wanted to get the road built for less money, and if he took a thousand yards out of a cut it was so much less.

Q. You say that Mr. Kelliher's business was to get the road built for as little money as possible, and if that be so, then Mr. Grant's busines was to put all the cost he could on the Grand Trunk?—A. I do not know about that.

Q. Is not that right; Grant wanted to put all the expense he could on the road when the Government had to pay for it, and the Grand Trunk make a return in interest?—A. I do not know that.

Q. Well, if you know one thing you ought to know the other. If Mr. Kelliher was prejudiced on one hand, there would be the same reason for Mr. Grant being prejudiced on the other.

By Mr. Gutelius:

Q. If a large amount of money was spent on that work, Grant wanted to make sure that the Grand Trunk Pacific would pay interest on that money rather than to leave an opportunity for the Grand Trunk Pacific to say: no, we won't pay on that. That would be an incentive that would make Grant stand up for practically all the work that had been done. Grant must have been your friend on that Commission, I mean in the sense that, representing the Government, if the Government had to pay he did not want to give the Grand Trunk Pacific a chance to slide out?—A. He is chief engineer of the Government.

Q. You say that Kelliher wanted the work done as cheaply as possible so that the Grand Trunk Pacific would have to pay interest on as small a sum as possible; is that right?—A. Yes.

Q. Now then, on the other hand, Grant wanted to make the Grand Trunk Pacific to pay as much interest on as much of the money spent by the Government as he could possibly make them pay; is that right?—A. No; I do not say that is right.

Q. Why?—A. I suppose it would be his interest to see that the Grand Trunk should pay interest on all that the road cost.

By Mr. Staunton:

Q. You say they paid for this overbreak at that time, and so Grant wanted to load off all he could on the Grand Trunk, did he not?—A. I suppose so.

At the afternoon session of the Commission, when the examination of the witness, Mr. J. D. McArthur, was continued, Mr. McArthur was represented by Mr. John H. Moss, K.C., of Toronto.

Examination resumed.

By Mr. Staunton:

Q. Referring to the arbitration that we were speaking of before lunch, that arbitration was to settle difficulties between the Grand Trunk Pacific and the Commission?—A. That is what I claim.

Q. That is what you understood?—A. Yes.

Q. The contractors were not parties to that arbitration?—A. No.

Q. Under the Transcontinental Railway Act, questions in dispute between the Company and the Commission, which cannot be otherwise settled, are to be referred to an arbitration?—A. Yes.

Q. You understand that this was the arbitration under the statute?—A. I do not know anything about the statute.

Q. Under the Transcontinental Railway Act?—A. Yes.

Q. I believe you refused to take part in the arbitration?—A. Yes.

Q. You wrote a letter to the Commissioners that it was not your concern?—A. Yes.

Q. Did anybody on your behalf accompany the arbitrators?—A. No.

Q. Was your engineer with them?—A. My engineer was with them part of the way anyhow, because he was engineer and superintendent of the road; our engine was pulling their car.

By Mr. Gutelius:

Q. He did not take part in the discussion?—A. No.

By Mr. Staunton:

Q. Did you get a copy of the arbitrators' finding?—A. Yes.

Q. Do you remember how much money they took off?—A. In the second arbitration it was over $500,000 or nearly $600,000.

Q. That was in deductions for what they claimed were unnecessary overbreak?—A. I do not know what for, but it was put in.

Q. You understood it was on account of the overbreak?—A. It was for classified material and overbreak.

Q. Do you know what they did on the first arbitration?—A. No.

Q. You had no information concerning that?—A. No.

Q. Who are the Eastern Construction Company?—A. It is Alex. McDougall and Son; it is an incorporated company.

Q. How much work did they have?—A. They had fifty miles.

Q. I understand you have not settled up with your subcontractors until you get this question of overbreak settled?—A. Some of them.

Q. These contractors that you say you have not settled with, you are holding back from them until this question of overbreak is finally settled?—A. Yes.

Q. Have you held back from them the whole amount of this $500,000 or $600,000?—A. No, not that much.

Q. How much have you held back?—A. I held back somewhere I think about $300,000.

Q. Had you a uniform price with these men?—A. Oh, yes.

Q. What percentage did you get?—A. It varied; I do not know there is much difference between all of them, but there is a difference.

Q. What percentage do you get on solid rock?—A. I get in some cases fifteen per cent and in other cases it runs down to about twelve per cent or ten per cent.

Q. And loose rock, what percentage do you get?—A. It would be about five per cent.

Q. And on common excavation, what percentage do you get?—A. On common excavation it would not go one per cent.

Q. There was not very much common excavation in this district?—A. There was quite a bit.

Q. There was not a very large percentage of common excavation?—A. It was not a large percentage.

Q. About how many yards of solid rock do the estimates show up to date?—A. Somewhere about 6,000,000.

Q. And how many yards of loose rock?—A. I cannot tell that; I see from the statement shown me now that it is 1,900,000 odd.

Q. About how many yards of common excavation?—A. 2,470,000.

Q. With reference to overbreak, suppose that it had been classified strictly in accordance with the specification in which it says that these slides shall be classified as they fall in the cuts, what percentage of stones after the shots had been fired, in an ordinary cutting would be less than one cubic yard in size?—A. I cannot tell you.

Q. What is your judgment as a contractor about that?—A. I cannot answer that.

Q. Take an ordinary granite cut in which a proper shot has been placed, and you and I walk into the cut and see how much is broken and we are going to make an ordinary guess, how many pieces of that rock would be less than a cubic yard—certainly we would get somewhere between 10 per cent and 80 per cent, would we not?—A. I cannot say; I never was a foreman in a cut, and I never took out a cut.

Q. From your knowledge in a general way, such as I have spoken of, do you not know that they only need to block holes about one-third of the cut, would not that be a lot of block holing?—A. For the first shooting.

Q. You take out the loose stuff and would not one-third of it be pretty badly shot?—A. What percentage of block holing I would do for heavy shooting, I do not know.

Q. I have this information from other sources and I would like, if I can get some kind of idea from you?—A. I cannot answer it, because it would not be fair to you and to myself if I did, because I have never done any of that.

Q. The reason it is so important to you is that under the specification all overbreak found in a cutting, the pieces of which are less than a cubic yard ought to be classified as loose rock; you see the importance of it in connection with this very case?—A. Yes.

Q. And if you don't feel that you would like to make any kind of an estimate we will pass on to something else?—A. That is the way I feel about it, I did not study it.

By Mr. Gutelius:

Q. Now, with reference to the original contract, here are the two original bids, are they not?—A. Yes.

Q. You see both of these original bids?—A. Yes.

Q. Now take one copy and I will keep the other. Now referring in your copy to page 6. and particularly to item 58: Concrete facing 1 x 2 x 2 1-2 inches thick, including forms, what price did you get for that?—A. $15.00.

Q. You got $15.00 for that on these tenders?—A. Yes.

Q. What price did you get on Item 59, concrete 1 x 2 x 4?—A. $15.00.

Q. What price did you get on Item 60, concrete 1 x 3 x 5?—A. $15.00.

Q. What price did you intend to bid for concrete 1 x 3 x 5 here, I see the space is left blank?—A. I intended to bid $15.00.

Q. Then Item 61: Concrete 1 x 3 x 6, what did you bid on that ?—A. $15.00.

Q. What price did you intend to bid for Item 62; Concrete 1 x 3 x 5, arch culverts, including curves, I notice that is blank?—A. That would be $15.00

Q. On Item 63, Concrete 1 x 3 x 6, in arch culverts, including curving, your bid calls for $15.00?—A. Yes.

Q. On Item 64, Concrete 1 x 3 x 6 in box culverts, including curving, what did you intend this to be? I note that it is blank?—A. $15.00.

Q. On Item 65, Concrete 1 x 4 x 8, ordinary foundations, including curving, your bid for that is how much?—A. $13.00.

Q. On Item 66, Concrete 1 x 4 x 8, walls of buildings, including curving, I notice this is blank, what price did you intend to bid?—A. I should think that would be $13.00.

Q. It would appear that if you had put brackets in here, (indicating in the book presented to the witness) and taken these different items off, it would have made clear what you were bidding instead of leaving these items blank, am I right? A. Yes, that would be the proper way to do it, I guess.

Q. Or it would have been equally plain if the word "ditto" had been written in under each of these figures which I showed you?—A. Yes.

Q. Now, Mr. McArthur, I would like to have you compare the contract with the original tender in connection with the items I have just enumerated. In the contract Item 58 is $15.00 per cubic yard?—A. Yes.

Q. This is the contract I am showing you?—A. Yes.

Q. And Item No. 59, is $15.00?—A. Yes.

Q. And Item No. 60, is $12.00?—A. Yes.

Q. You remember then a moment ago that you told me Item No. 60 was intended to be $15.00, am I right?—A. Yes.

Q. Item 61 is $15.00 in the contract?—A. Yes.

Q. Item 62 is $13.00 in the contract?—A. Yes.

Q. You told me a moment ago that you intended it to be $15.00?—A. Yes.

Q. Item 63 in the contract is $15.00?—A. Yes.

Q. Item 64 in the contract is $11.00?—A. Yes.

Q. Item 64 you intended to be $15.00 in your bid?—A. Yes.

Q. Item 65 is $13.00 in the contract, which is the same as in the bid?—A. Yes.

Q. Item 66 in the contract is $10.00 and you intended it to be $13.00 in the tender?—A. Yes.

Q. Is that information new to you, Mr. McArthur?—A. I would have to say yes, and I ought to know better all right. It is through not just checking both up, I guess.

Q. You do not mean to tell us that this is the first information you have had that in the contract price for concrete they gave you in some cases $1.00, in other cases $2.00, in other cases $3.00, in other cases $4.00, and in other cases $5.00 a yard less than your tender called for?—A. Was there any of this done on the work?

Q. You have received on the $13.00 concrete $22,750.70, on the $12.00 concrete you have received $188,953 in your estimates. Was there not some informa-

tion in connection with this given to you, between the time that you handed in your tender and the time you signed the contract?—A. No, I do not recollect that there was on the concrete.

Q. There were other items that you overlooked, were there?—A. There were some small little things, I forget what they were, and we asked for prices and we did not get them and they did not amount to anything, something about tracks or connections or something of that kind, that is the only thing I recollect.

Q. I will refresh your memory in connection with twenty-seven items, where unit prices are given in the contract and not in your tender, and by reference to the contract and the original tender which I will place before you, you will be able to answer the question. While you are looking at them, I will call them off and when I read the items that are shown in the item and not covered in the tender you will say nothing in the tender. Now, Item No. 15, pole drains, 25 cents per lineal foot?—A. Nothing in the tender.

Q. Item 21: piling out reserved stone from rock cuttings, $1.00?—A. Nothing in the tender.

Q. Item 28: Cedar timber in culverts, 8-in. x 12-in. 10-in. x 12-in. and 12-in., per M. ft. b. m., $40.00?—A. Nothing in the tender.

Q. Item 32, vitrified pipe culverts—14-in. diameter, $1.25 a lineal foot?—A. Nothing in the tender.

Q. Item No. 33, Vitrified pipe culverts—15-in. in diameter, $1.35 a lineal foot?—A. Nothing in the tender.

Q. Item No. 35: Reinforced concrete pipe—12 inches in diameter, $1.20?—A. Nothing in the tender.

Q. Then Items from 35 down to 50 inclusive have all been interpolated in the contract and are not shown in the tender?—A. That is correct.

Q. The following are the Items from No. 35 down to No. 50, inclusive: 35—Reinforced concrete pipe, 12 inches in diameter; Item 36, Reinforced concrete pipe—14 inches in diameter; Item 37, Reinforced concrete pipe—16 inches in diameter; Item 38, Reinforced concrete pipe—18 inches in diameter; Item 39, Reinforced concrete pipe—20 inches in diameter; Item 40, Reinforced Concrete pipe—24 inches in diameter; Item 41, Reinforced Concrete pipe—30 inches in diameter; Item 42, Reinforced Concrete pipe—36 inches in diameter; Item 43, Reinforced Concrete pipe—42 inches in diameter; Item 44, Reinforced Concrete pipe—48 inches in diameter; Item 45, Reinforced Concrete pipe—54 inches in diameter; Item 46, Reinforced Concrete pipe—60 inches in diameter: Item 47, Reinforced Concrete pipe—4 inch agricultural under tile drains; Item 48, cast iron pipe culverts—16 inches in diameter; Item 49, cast iron pipe culverts—18 inches in diameter; Item 50, cast iron pipe culverts—20 inches in diameter?—A. Yes.

Q. These are all interpolated in the contract and are not shown in the tender?—A. That is correct.

Q. Items 54 and 55, cast iron pipes?—A. Nothing in the tender.

Q. Item 56, cast iron pipe?—A. Nothing in the tender.

Q. Item 57, cast iron pipe culverts?—A. Nothing in the tender.

Q. Items 60, 62, 64 and 66 are the concrete items the details of which we have gone over?—A. Yes.

Q. Item 81, Semaphores at stations, complete, $550?—A. Nothing in the tender.

Q. Item 82, Interlocking appliances, complete, eight levers, including all connections, signals, etc., $6,000?—A. Nothing in the tender.

Q. Item 83, Each additional lever $200?—A. Nothing in the tender.

Q. Item 86, rock sections (unlined) $75.00 per foot?—A. Nothing in the tender.

Q. Item 87, tunnels (lined), $85.00 per foot?—A. Nothing in the tender.

Q. Item 88, tunnel, concrete lining, per cubic yard, $15.00?—A. Nothing in the tender.

Q. Item 89, tunnel, masonry lining, $15.00 per cubic yard?—A. Nothing in the tender.

Q. Item 90, drainage tunnels, 4 cubic yards, $25.00 per lineal foot?—A. Nothing in the tender.

Q. Item 93, turntables, $3,000 each?—A. Nothing in the tender.

Q. Item 94, track scales, $1,000 each?—A. Nothing in the tender.

Q. Item 95, tunnel shafts, $5.00 each?—A. Nothing in the tender.

Q. Now, Mr. McArthur, I wish you to tell us how you permitted those prices to be put in in the contract which you executed and which were not covered in your tender?—A. In the first place, there were a lot of these items there that we never used in the road; there is no estimate for some of them today. There were no tunnels shown on the first profile.

Q. How about those items that were shown on the profile?—A. There were none of them shown on the profile as far as quantities or anything of that kind, but of course it was in the specifications.

Q. I wish you to explain very fully how you undertook a contract of that character?—A. In the first place the way we put in our tender, when putting in those figures, it was figured out that they did not amount to very much, that we didn't have a price. It was done in a very short time, and then when they were awarding the contract it was left to the chief engineer.

Q. Do you say it was left to the chief engineer to fill in the prices?—A. Yes, with his experience of that kind of work.

Q. How did you leave it to the chief engineer to fill in those prices, was it by any legal document?—A. No.

Q. Who did you tell to do that or that you would be willing to have that done?—A. Mr. Lumsden.

Q. Mr. Lumsden personally?—A. Yes. We talked over it and put it up to him that he had the experience and knowledge of these things.

Q. Be very sure just whom you mentioned it to that it would be all right for the chief engineer to fill in these figures?—A. As far as I recollect, he was the man that spoke to me about it.

Q. When he spoke to you about it you knew then that you were the lowest bidder, he told you that same time that you were the lowest bidder?—A. Yes.

Q. And that it took those prices he put in to get you the contract?—A. I don't know he put it exactly that way only I did not have the prices in and that if there was a price put in it would go in with his experience, and I was satisfied that it did not matter very much on a large contract whether I was a little out or not, it was a small amount. It is the way we do on contracts, as you know.

Q. Did you and Mr. Lumsden discuss the fact that the more expensive concrete there was going to be put in for the lower figure; that is, concrete 1 x 3 x 5 was $12.00, and concrete 1 x 3 x 6 was $15.00; did you know you were getting such an unbalanced bid?—A. Yes, it was a small item of arch in the $12.00 contract. The mass was in the other, in the foundations.

Q. You would be surprised when you look at your estimates, a copy of which I have before me, that the $12.00 concrete amounted to 15,700 yards, and the $15.00 amounted to 11,000 yards, that is, there is more of the $12.00 than there is of the $15.00?—A. I do not know that was discussed at the time; we thought the other was going to be the massive work.

Q. Did you know from your conversation with Mr. Lumsden that unless you allowed these interpolated prices to stand, you would not get the contract?—A. No.

Q. You are sure you did not?—A. No, it was not put in that way, I don't think.

Q. In your bid for piles, you wrote the pile items No. 10 and No. 11 in the tender. Item No. 10, piling delivered as per engineer's bill, per lineal foot, 25 cents. Item 11, piling driven, 15 cents. Now, after 15 cents, you wrote in the words "driving only." Why did you put the words "driving only" in there? —A. I don't remember. These words are not written in by me. It means that it only includes the driving and not the piles themselves.

Q. You did that because the specifications were not entirely clear as to whether the piles were to be included or not in the tender for Item 11?—A. The words must have been put in because it was thought the specification was not clear without them.

By Mr. Staunton:

Q. Did Mr. Lumsden bring these prices to you filled in or suggest that he would fill them in?—A. He mentioned that there were several items that I did not fill in.

Q. Did he suggest that he should fill them in?—A. No, I do not think so. I suggested that he would fill them in. There were some little items and things that I did not know the price of them and in his experience he could fill them in.

Q. Did you and he go over these particular items and arrive at the exact figures for them together?—A. No.

Q. Then he made them up by himself without consultation with you?—A. Yes, he mentioned to me that he put them in or before he put them in, I cannot vouch for that.

Q. All you know is that he spoke to you about that?—A. Yes.

Q. And you cannot recollect any further than that?—A. No.

By Mr. Gutelius:

Q. From information before us, you appear to have been paid for 408,220 cubic yards of solid rock in your progress estimates for material known as assembled rock, which is composed of pieces of rock smaller than one cubic yard mixed in with sand and clay and hardpan, what have you to say why this material, not being solid rock, should not be classified as loose rock?—A. I cannot tell you.

MR. MOSS:—Surely that is an engineering question.

MR. STAUNTON:—It is a contract question.

MR. MOSS:—It is a mixed engineering and legal question. There were pages and pages of evidence about that in the Lumsden investigation and opinions of all sorts.

By Mr. Staunton:

Q. You were to be paid for solid rock of a cubic yard and over in size and you were paid for solid rock which was under a cubic yard?—A. Yes, assembled rock was something I never heard of except on this job.

By Mr. Gutelius:

Q. And when you made your tender on this job you never heard of assembled rock?—A. No.

Q. So that any advantage or disadvantage that accrued from the adoption of assembled rock was a new feature to you?—A. Yes.

By Mr. Staunton:

Q. Did you see any of this assembled rock yourself?—A. No.

Q. Do you know where it occurred mostly?—A. I know it occurred particularly in the east, end of the contract.

By Mr. Gutelius:

Q. Tell me one thing about rock removal, Mr. McArthur, is it not a fact that in the last few years contractors are shooting material, blasting material, which ten years before was taken out with pick and shovel, only just blasting it to loosen it?—A. I suppose a great deal of the blasting and shooting on the contract you are speaking about was probably done in the winter months when the ground was frozen.

Q. Generally speaking, is there not a change in the method of removing loose rock as compared with ten or fifteen years ago, don't they shoot stuff now that they did not shoot then?—A. I guess we do.

Q. I think I recognize a tremendous change between now and the time I was resident engineer watching work of that kind in the methods they employ, that is my reason for asking the question?—A. Of course it is changed some alright, I think. They are using more explosives now to loosen it up where they used to pick it more.

Q. It has been said that larger shots were used on this work on account of hurrying the works to completion, what have you to say about that?—A. I guess that is probably right.

Q. Did you receive many communications from the chief engineer yourself in connection with rushing the work?—A. No, not so very many.

Q. And it did not cut much figure in the way of handling the work?—A. You mean the letters we got?

Q. No, the haste. There were no great amounts of money expended on your part or on the part of your sub-contractors on account of any haste in completing that work?—A. Yes, I am sorry to say there was.

Q. I wish you would tell me more about that, if you can?—A. One of the things was the conditions of labor we were up against and the work that was going on in the country at the time and we spent large sums of money trying to get labor on the work to hurry it along, as the commissioners were urging us to push the work; we were trying to comply with their wishes.

Q. Who paid for getting the men in?—A. I paid a great proportion myself, the large proportion I expect, the sub-contractors also.

Q. When you were given this contract, Mr. McArthur, was there any stipulation, verbal or otherwise, as to whom you should buy your powder from?—A. There were two powder men in the field at the time. They tendered for the supply.

Q. And you gave it to the lowest tenderer?—A. Yes.

By Mr. Staunton:

Q. But were you asked to give it to any particular firm?—A. No, I don't think I was asked to say you have got to give it to any particular firm. I may have been told what-you-call-him will be able to supply you, they are a good firm.

Q. Who were you told was a good firm and would be able to supply you?—A. These people in Montreal, I think it is the Standard Explosives Company and the Hamilton Powder Company were the two.

Q. Who gave you that information?—A. I cannot tell you offhand who it was, someone around the Russell House, each one had its friends, they were both strangers to me.

Q. What we want to know is, did any person in connection with the Commission suggest to you that it would be well to buy your powder from any particular firm?—A. I do not recollect anyone on the Commission.

Q. Anybody in connection with it?—A. I do not recollect of any of them going that far.

Q. How far did they go?—A. I cannot say that I ever mentioned it at all, myself.

By Mr. Gutelius:

Q. I would like very much to get this cleared, because there is an impression that has prompted this special enquiry about the powder?—A. I do not see that I can clear it up more than I am giving you just now. I do not know that probably if Mr. Moss were around the hotel he would mention somebody.

MR. MOSS:—No, I am not in that business.

By Mr. Gutelius:

Q. You can say that there was no pressure brought on you by any member of the Commission or anyone connected with the Transcontinental Railway to have you purchase your powder from any one special firm?—A. I can certainly say that.

By Mr. Staunton:

Q. Do you know of any pressure being brought to bear on any of your sub-contractors to purchase their powder from any particular firm?—A. No, not that I know of. Under my contract with the sub-contractors, they were supposed to take their powder from me.

By Mr. Gutelius:

Q. You undertook to supply your sub-contractors with powder?—A. Yes, but they bought from other firms.

Q. Why were you interested in supplying the powder to your subs?—A. Well, because I was trying to make 10 per cent.

Q. On the supplies?—A. Yes.

Q. Did your sub-contractors buy all their supplies from you?—A. No, they did not.

Q. Were they supposed to?—A. Oh they were, but I left them off to suit themselves. There were not very many of them that could buy without coming to me, they were not strong enough.

Q. I lead from your evidence a moment ago that if the new classification of assembled rock had never been born, that you would have expected to have completed the same as on railroads with similar specifications, by giving solid rock only for solid rock, the fragments of which are larger than a cubic yard, is that right?—A. That is right.

By Mr. Staunton:

Q. Before you made your tender, what information was furnished by the Commission to you?—A. All the information that was furnished was the profile and what we were getting from the engineer out in the field, Major Hodgins.

By Mr. Gutelius:

Q. And the copies of the specification?—A. Yes.

By Mr. Staunton:

Q. What were you getting from Major Hodgins in the field?—A. I sent a man down there and gave him a letter for him to get all the information he could from Major Hodgins.

Q. This Major Hodgins gave you a copy of the engineer's preliminary estimate?—A. No.

Q. What kind of information did he give you?—A. Oh, it was rough information, just the direction that the line was going through, and you see that was not final. They did not have a profile of the whole line at the time that they asked for bids for this work, and particularly the profile they had the location was all changed and, as I said a while ago, there were no tunnels shown in the first profile or anything like that and the line was changed afterwards as they considered better for the road.

Q. Do I understand you to say that you did not see or get any information which gave you any knowledge of what the preliminary estimate of the engineers was as to the cost of this work?—A. No, I did not get it in figures more than that it was approximately spoken of.

Q. By whom?—A. Well by Major Hodgins.

Q. Do you know whether he had a copy of the preliminary estimates made in the office by the engineers?—A. No, I do not.

Q. He did not show you any?—A. No.

Q. Did any of the commissioners show you any?—A. No, not by really showing it to me. They may have talked over it but I do not recollect them showing me the figures.

Q. Did any of the commissioners tell you approximately what the estimates of the engineers were?—A. I think probably they did, just the same as Major Hodgins did and he was down here at the time.

Q. Who probably told you?—A. I guess probably Young told me and Reid.

Q. So that you had a more or less accurate idea of what the Commission expected this work would cost?—A. These figures were mentioned.

By Mr. Gutelius:

Q. To clear up that pile-driving note, did anybody know you wrote that in there except you and your men who wrote it, did anyone connected with the Commission or their engineers know that you had written in the words "piles driven"?—A. I do not think so.

Q. You feel that that was your own idea because the specification was not quite clear?—A. I think that was put in so as to make it clear.

Q. I want you to be very sure on this point, because, as I told you before, you would not have got the contract if you had not written these words in there; you can quite understand why we would want you to tell us very candidly about it.

Mr. Moss:—Its a pity he wrote it in; he would not be here this afternoon if he had not.

Mr. McArthur:—That is true. I do not know of anybody knowing that was written in except my own man and myself.

By Mr. Staunton:

Q. Item No. 62 is concrete 1.3.5. in arch culverts, including curving; Item 63 is concrete 1.3.6. in arch culverts, including curving; you said to Mr. Gutelius that you thought more of Item 63 would be used than of Item 62; why did you think that?—A. We figured out, whatever one it comes under, that there was one of the items there would be more of such as foundations and piers.

Q. But you would not put the more expensive mixture in the massed concrete, would you?—A. The other item did not amount to very much.

Q. You would not expect as a contractor to use a richer mixture in mass concrete?—A. That would be left to the engineers, I suppose.

Q. You said you expected to use more of 1.3.5. than of 1.3.6. because you said that you expected 1.3.5 would go on largely massed concrete?—A. Yes.

Q. That is not the usual custom to put the richer mixture in the massed concrete, is it?—A. No.

Q. So that you would naturally expect that 1.3.6. for which you charged $15.00 would be more used than 1.3.5. for which you charged $13.00, would you not?—A. Yes.

Q. And you were going to get a bigger price for the cheaper concrete than for the more expensive concrete?—A. Yes, there was more of it.

Q. How on earth did you ever arrive at that conclusion?—A. Oh, that follows contracting; you cannot expect you are going to win on everything.

Q. You would not expect me to accept a tender from you and to pay you more money for a cheaper article than for a dearer article?—A. No, but there is the figures and the other fellow didn't beat it.

Q. Concrete 1.3.5. is more expensive to the contractor than 1.3.6., is it not?—A. I do not think it is very much more.

Q. Then why did you make a difference of $2.00 per yard between these two items?—A. As I said before I figured there was more of that.

By Mr. Gutelius:

Q. Lumsden put those prices in for you; he put that cheaper price in for you; you were going to bid $15.00 all through, except for the foundation stuff?—A. Yes.

Q. He put these other prices in?—A. Yes.

By Mr. Staunton:

Q. What I cannot understand is how the two of you could sit down and not laugh at each other when you put in these figures.

Mr. Moss:—He did not sit down with Lumsden.

By Mr. Gutelius:

Q. One other question, you signed up that contract, knowing that Lumsden had made some changes in your figures, some additions and changes in your figures, and you did that without studying what these changes were?—A. Yes, it was figured at the time such a small item that we did not consider it one way or the other.

Q. They must have told you it wasn't so; Mr. Lumsden must have given you that idea; you could not tell yourself?—A. Perhaps he did when he mentioned to me this items that were not filled in in the tender.

Q. And you did not feel as if it would make much difference and you let it go?—A. Yes, the big things are two or three items in the contract, which make the contract as a rule.

By Mr. Gutelius:

Q. Before closing this enquiry, is there anything you have in your mind that you would like to tell the investigating Committee that has not been brought out, if so let us hear it?

Mr. Moss:—That is a wide question.

Mr. Gutelius:—There may be little things we have not asked about. Nearly every contractor has some little things he wants to tell us and we give him that opportunity.

Mr. Moss:—I was going to say, before Mr. McArthur answered that question, that Mr. McArthur has attended here voluntarily and without any notice of the matters that were to be discussed and of their bearing, and that a number of points have been touched on to-day which it is obvious he is speaking about off-hand, after recollection of two or three years, and if it is proposed to make any findings, which would reflect in any way on Mr. McArthur or his business, he should have an opportunity of giving further evidence and explaining further if necessary. I do not know what importance is attached to them at all in the mind of the Commission, but I should think it would not be proper to make any public finding based on them on this very informal and unprepared evidence.

Mr. Staunton:—If Mr. McArthur wished to prepare himself to give evidence, he could have told us so. True, we did not subpœna him, but we asked him to come here and give us this evidence. You came yesterday to see us, and I told you generally what we wanted to ask about, and if Mr. McArthur was not prepared to give evidence he should state so. Now, this evidence is taken for the purpose of the Commission, for the purpose of making our report, and we expect to rely upon it. We do not regard it as taken informally or in any other way than in

the ordinary course. We do not exactly understand what you mean by that, Mr. Moss. We do not desire to get evidence from any person who is not ready and thoroughly posted on what he testifies to, and if Mr. McArthur desires to give us any further information in connection with this case, we will be very glad to hear him. He certainly is not very clear on a good many things, but we are not responsible for that. Our desire is to get all the information possible. So, if there is anything else.....

Mr. Moss:—I think, for instance, in reference to what was said about the assembled rock, I do not think Mr. McArthur's evidence in regard to that was quite clear or quite of the kind to be brought out in further explanation.

Mr. Staunton:—What Mr. McArthur told us was, that he knows nothing about it; I suppose that is correct; and that he never heard of assembled rock before.

Mr. Moss:—I think what Mr. McArthur meant was that he had not experience with that class of material before.

Mr. Gutelius:—If you have a private talk with Mr. McArthur you will find, I think, that everything he told us is just what he believes.

Mr. Staunton:—I wanted Mr. McArthur to tell us as a contractor what he knows about classifying stones of a smaller size than a cubic yard, when they are mixed with a matrix composed of clay, sand, or other material.

Mr. Moss:—Cemented together so as not to be removed without blasting, that was Lumsden's definition.

Mr. Staunton:—He may tell us what he thinks about that, and then he may qualify it in any way he chooses.

Mr. Moss:—Lumsden's definition of assembled rock, as I remember it, is that these have to be cemented together in such a way as is best removed by blasting.

Mr. Staunton:—That is interjected afterwards. There is nothing at all about that on the blue print.

Mr. Moss:—It was interjected by him.

Mr. Staunton:—Not in the blue print.

Mr. Moss:—May I have a conversation with Mr. McArthur?

Mr. Staunton:—Certainly. We would like Mr. McArthur to tell us all about that and if he desires I will take him over it.

This ended the examination.

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION. MEETING AT OTTAWA, JANUARY 30th, 1913.)

Present: G. Lynch-Staunton, K.C., *Chairman;* F. P. Gutelius, C.E.

M. J. O'Brien, sworn:

Examined by Mr. Gutelius:

Q. You are one of the principals in the following contracts on the National Transcontinental Railway: Contract No. 10, from Mile 50, west of Quebec Bridge westerly for 100 miles; Contract No. 11, from La Tuque to Weymontachene, 46.4 miles; Contract No. 12, from near Weymontachene, westerly 107 miles; Contract No. 13, from about 107 miles west of Weymontachene, westerly 115 miles; Contract No. 16, from west of Contract No. 15 (Fauquiers'), westerly 100 miles; Contract No. 17, from the west end of Contract No. 16, westerly 100 miles; Contract No.

19, from the westerly end of Fauquier's contract No. 18 to near Dog Lake, a distance of about 126 miles; Contract No. 20, from near Dog Lake westerly about 25 miles?—A. Yes.

Q. With reference to Contract No. 10, I find that this contract was assigned to McDonald & O'Brien by Hogan & McDonald, to whom the contract was originally awarded, is that right?—A. Yes.

Q. How did you happen to get this contract?—A. At that time I tendered with Mr. Mullarkey and Mr. Hogan tendered with Mr. McDonald, being an old partner of his, and it would appear that Mr. Hogan became ill and was not able or did not want to proceed with the contract and they asked me if I would come in in his place, which I decided to do, after seeing Mr. Mullarkey. I simply came out of the other firm into this one, taking Mr. Hogan's place in this contract.

Q. Was there any consideration passed between you and Mr. Hogan in connection with that transfer?—A. None whatever.

Q. Now, contract No. 11 was sublet to McDonald & O'Brien by the Grand Trunk Pacific Railway Company?—A. Yes.

Q. How did you happen to get this contract and what was the consideration?—A. We were tenderers for that work against the Grand Trunk Pacific, and, of course, they outbid us by a little. Then, we being on the ground and having the plant, approached them about taking the work off their hands. We were to give them 5 per cent, if my memory serves me right; that is all they got.

Q. 5 per cent of the gross returns on the contract was given to them and you retained the balance?—A. Yes.

Q. On Contract 12, you were the original successful bidders?—A. Yes.

Q. And you received your contract direct from the Commissioners, in the name of McDonald & O'Brien?—A. That is correct.

Q. I note that there were only two bids in connection with this contract No. 12, did you know at the time of putting in your figures that there was only one other competitor?—A. Oh, no, certainly not.

Q. You had no knowledge of how many tenders were being placed on contract No. 12?—A. No.

Q. You are certain of that?—A. I am, in fact I was under the opinion that there was more than two tenders on that work.

Q. Then contract No. 16 in which you are interested, I note was originally awarded to M. P. Davis and J. T. Davis, and subsequently sublet to O'Brien, McDougall & O'Gorman?—A. Yes.

Q. What were the conditions in connection with that subletting?—A. Well, we being working up in that section west of these sections, we formed this combination and took these two sections from Mr. Davis, giving him a margin.

Q. What was that margin?—A. 10 per cent.

Q. 10 per cent on the gross estimates?—A. Yes.

Q. Contract No. 17 was taken from M. P. & J. T. Davis by you, on a 10 per cent basis also?—A. Yes.

Q. On contract No. 19, O'Brien & McDougall Brothers were the successful bidders and received their contract from the Commissioners direct?—A. Yes, O'Brien & McDougall Brothers. I think it was O'Brien, Fowler & McDougall Brothers.

Q. Did not Fowler come in afterwards?—A. Yes, perhaps he was not here at the time of the tender, I think you are right.

Q. You tendered as O'Brien & McDougall Brothers?—A. I think so, I was not here at the time.

Q. Contract No. 20 you received direct from the Commissioners of the National Transcontinental Railway?—A. Yes.

Q. Did you know that there were only two tenders for contract No. 20; had you any knowledge of that fact?—A. No, I was not here at the time, I was in the Province of Nova Scotia when these tenders were put in.

By Mr. Staunton:

Q. You are a contractor of very large experience, are you not?—A. Extending over a good many years.

Q. In contracting for work of the description to be performed for the National Transcontinental Railway, when you have worked for other railway companies, have you ever been required by these other companies to put up security for the due performance of your contract?—A. Yes.

Q. Does the C.P.R. require security?—A. Well, let me see, I know in the case of the Quebec & Saguenay Railway, I was obliged to put up security, that is the only case I remember, I wish I had not put it up there.

Q. As a matter of fact, the C.P.R. and the G.T.R. and the Canadian Northern Railway Company do not require security?—A. Not so far as I am aware.

Q. In a contract of this kind, is there the slightest necessity to ask a man to put up security?—A. If the contractors are responsible, I would say no.

Q. And it is the business of a man who has a contract to let to see that he gets a responsible contractor?—A. Yes.

Q. And if he goes about the business in the proper way, he can ascertain whether or not the intending contractor is responsible financially and experienced sufficiently to perform the contract, is that right?—A. Yes, it appears to me to be right, looking at it from the contractor's point of view, certainly.

Q. Looking at it from the business point of view, if you had a railway to build you would want to get all the contractors who are able financially and experienced sufficiently to perform that contract, to tender, would you not?—A. Yes.

Q. And it would be to your interest not to put any difficulty in the way of such men if you could avoid it?—A. Quite true.

Q. So that both from the contractor's point of view and from the proprietor's point of view, the requiring of security is an unnecessary impediment put in the way?—A. Well, let me tell you that in the shape of cash it is certainly a great impediment. In the shape of the bonds which perhaps should be exacted in most cases, it would not be so bad.

Q. Why should a bond be exacted?—A. So that we would carry out the contract and be sure to carry out the work undertaken.

Q. Why should it. The C.P.R. has spent many millions, and they have not found it necessary to have bonds taken. Why should a bond be taken from a responsible contractor who is going to put a large plant on the work?—A. That is my own view of it, that is what I would say.

Q. My view is that it is a very imprudent thing to ask a contractor to put up security and I want to find out whether you agree with that or not?—A. So long as the contracting firm is financially strong and capable in every respect, I would say that there would be no need of asking for security, that would be my answer.

Q. And a person who had a big work to let would be very foolish not to find out if his contractors were strong before he let them have the work?—A. Yes.

Q. Now, in this Transcontinental Railway competition, the Commissioners advertised in the newspapers for tenders?—A. Yes.

Q. And those advertisements advised the contractors of Canada and the United States that each tender must be signed and sealed by the parties to the tender and must be accompanied by an accepted cheque on any chartered bank of Canada, payable to the order of the Commissioners of the Transcontinental Railway, in the advertisement I am looking at, ranging from $75,000 up to $100,000, according to the size of the work. Now, with each of your tenders you had to enclose a certified cheque on the bank for a large sum of money?—A. Yes.

Q. And it was necessary for you to furnish that money and to lose its use while these tenders were being considered?—A. Yes.

Q. The advertisement goes on to provide further, that any person whose tender is accepted, shall, within ten days after the acceptance thereof, furnish such additional approved security as may be required by the Commissioners. So, you had to put your head into the noose, or your cheque into the hands of the Commissioners, and then if they said to you: Mr. O'Brien, your tender is for a million dollars and we want a million dollars security, you had to put up that million dollars security or lose your deposit of $100,000?—A. That is the meaning of it, as I understood at the time.

Q. Did you know though, at that time, that although the commissioners did not so advise the public, they had made up their minds that the security to be required in addition to the certified cheque would be limited to 33 per cent of the estimated cost of the work?—A. You are asking me if I had knowledge of that?

Q. Yes?—A. No, we did not know exactly where we were on the basis of that advertisement.

Q. I have heard it said by substantial contractors, men of large experience and large men, that they did not tender on this work because the security required was so unreasonable?—A. They said they did not tender on that account?

Q. Yes, they were afraid to put up $100,000 because they did not know what the commissioners might exact from them afterwards, and they might lose their money as their money is to be forfeited if they did not sign the tender; you know that?—A. Yes, that is the way the advertisement reads.

Q. That the deposit is to be forfeited if they did not sign the contract in the event of its being awarded to them and put up this security which the commissioners might demand, whatever it might be?—A. The commissioners had that power.

Q. Did you make any enquiry from the Commission to find out what securities they were really going to ask you for?—A. No, we imagined that the accepted cheque sent in with the tenders would be all that would be asked.

Q. That is what Mr. O'Brien imagined?—A. Yes.

Q. But it was pure imagination?—A. That was all it was.

Q. Didn't you take the trouble, Mr. O'Brien——I do not think there would be anything improper in your doing so, I think it would be a most prudent thing to do—to come to the Commission and say; have you made up your mind what security you will require?—A. We did not do so. We took the documents as they were. We accepted the contract, we accepted the specifications as they were.

Q. Did you ever hear of large works being let on such conditions before?—A. Well, I have no recollection of any such stipulations and such a large security being asked; in this case, we had to have 15 per cent.

Q. The Government does not require such a large security in connection with its works?—A. No, it is 5 per cent I think.

Q. In the Railway & Canals Department there is a standing order in Council saying that you shall give security to the amount of 10 per cent if your contract is $250,000 or less, and if the contract is over $250,000, the security is 5 per cent; that is the Government practice?—A. That is, as I understand it.

Q. And that is the advertisement put in the newspapers?—A. As to the amount to be deposited?

Q. Yes?—A. It was in this case.

Q. But in the Railways & Canals Department the 5 per cent and the 10 per cent as stated in the advertisement?—A. I suppose so, I don't remember, but I thought it was 5 per cent all around.

Q. It is 5 per cent up to a certain limit. The difficulty put in the way of contractors was enormously increased in the case of the Transcontinental?—A. Yes, and especially in the first tendering.

Q. The total amount of the contracts you have on the Transcontinental Railway, according to the estimates of the engineers is about $26,800,000?—A. Yes.

Q. Do I understand from you that you were required to furnish cash security to the extent of 15 per cent on that?—A. No, that is a misunderstanding. The 15 per cent only applied to the first contract of ours, No. 10.

Q. How much cash security were you required to supply in that case?—A. I should say in the neighborhood of $1,000,000 more or less.

Q. The total estimates of that contract were about $6,000,000?—A. Yes.

Q. And you put up as security $1,169,000?—A. That I think is about right.

Q. Now then, Mr. O'Brien, they did not keep that money, did they?—A. Keep it, oh no.

Q. They gave it to you back again?—A. Yes, as the work progressed.

Q. Did you get it all back or nearly all back long before you had finished your work?—A. They handed me the draw back, that is customary in contracting practice.

Q. It is not customary in contracting practice, because it is not usual in contracting practice to make you put up a security at all?—A. I think in all Government contracts they ask for a security of 5 per cent and this being a Government contract I suppose they thought they would do the same thing and the contract provides that from time to time they can make advances to us for the purpose of carrying on the work.

Q. Where is there any right under this contract entitling the commissioners to give you up the security before the work is completed?—A. I am not so sure that they say anything in the contract providing for that.

Q. They may if they so choose, being satisfied that the security is sufficient, pay you any portion of the 10 per cent drawback on your performed work? That is what you refer to?—A. Yes, I was referring to that.

Q. The fact is, that although it appeared in the public newspapers that you had to deposit a cheque with your tender, and although it appeared that you had to give security afterwards to the satisfaction of the commissioners, and although it appeared when you signed your contract that you had to give security up to 33 per cent of the engineers' estimates on the cost of your work, they eventually did take 10 per cent of the estimates as deposit and then paid it back to you before the work was completed?—A. Not before the work was completed.

Q. I think so, I think you personally got all your security back?—A. No.

Q. Not your drawback, but your security?—A. No, we have not, No. 10, No. 11 and No. 12 are practically finished contracts.

Q. McDougall & O'Brien got back in July, 1910, $150,000 on contract No. 12, and they got on contract No. 19, in May, 1910, $200,000, and on contract No. 20 the same thing; I am not saying there is anything wrong in this?—A. No, there could not be for the simple reason that the security has changed its form; it has taken the form of plant.

Q. They gave up the cash, that is all I am talking about?—A. To buy plant.

Q. They gave up the cash?—A. Yes.

Q. You did not give them any lien on your plant?—A. By virtue of the contract?

Q. They had that lien anyway?—A. Yes.

Q. The security that the commissioners had was a cash deposit, a drawback, and a lien on the plant. By the contract they had that?—A. We remonstrated with them.

Q. I know you did?—A. We said this to them; you have now the plant, we have $1,800,000 worth of plant on your works. It was nothing more than reasonable they should release our security because they had it in the form of plant which by virtue of the contract became theirs until the work was finished.

Q. I quite agree with you, I think your statement is perfectly reasonable, but they would have had that plant as security anyway, even if they never had asked you to put up any other security?—A. Quite true.

Q. You do not approach the matter from the point of view I am approaching it from. I think it was ridiculous to ask for that security, and, as a matter of fact, after the Transcontinental commissioners got it, they gave it up, and they only had the same security for the performance of the work as they would have had if they never had asked for security at all; they had your plant and your drawback?—A. They had it in a different form.

Q. But if they kept the $200,000 you would have to get your plant anyway? —A. Yes.

Q. Then you would have the plant and the $200,000 which I agree with you would have been quite unreasonable?—A. It would be away up in the millions; it would be so unreasonable that we could not proceed.

Q. You think I am trying to make you say that they did something improper in your case in releasing that security, but I am not at present enquiring into that phase of it at all; I am trying to get you to say that in the course of the performance of this contract, the Commission found themselves eventually in no better position than if they had not asked for security at all in the first place; I think they should not have asked that security, is not that correct?—A. Well, all I can say is that it is Government custom.

Q. We will leave the Government out for the present, we are talking about the Transcontinental Railway Commissioners. Nobody is condemning anybody for that at the present time, but that was the result—for example, in contract No. 19 you got back that $200,000 and you say the way you got it back was by saying to the Commission; I need that money to put it into plant?—A. Yes.

Q. But if they had not acceded to your request, you would have had to put the plant on anyway?—A. Certainly.

Q. You will agree with me then, that in the end the Commission were in the same position as if they had given you this contract on the same terms as the C.P.R. would have given it to you so far as the security is concerned?—A. Yes.

Q. What I am driving at is this: this Commission, in my view, did not adopt a businesslike method in encouraging people to bid on the contract, and although they put impediments in the way of bidders with regard to putting up security, they had no more security in the end than an ordinary railway would have?—A. Do you mean for the reason that they made the contracts larger and asked for larger security?

Q. Yes?—A. As to that I do not know.

Q. You do not pass any opinion on it?—A. No.

Q. Now I will come to the question of the large contracts. They divided this railroad, for the purpose of tendering, into very large sections mostly?—A. Yes.

Q. So that an ordinary man with a good plant and a good experience could not come within gunshot of getting a contract on this road?—A. Well, it tested the strength and the ability of the contractors. It was open to all to come in and tender.

Q. Oh yes, just the same as it is open to me to buy the Chateau Laurier if I had the price?—A. We were not always successful; we were as often sub-contractors as chief contractors on the works; they outbid us.

Q. I am only saying that a man had to have very large resources in order to successfully tender for this work?—A. Quite true, and that is the kind of men they wanted.

Q. But the number of such men is very limited in Canada in the contracting business, is it not?—A. They are not very numerous, I am free to admit.

Q. And the result was, that there was only on most of these works two or three people who tendered?—A. It would seem so, I do not know how many tenders were in.

Q. For instance, J. D. McArthur got a $13,000,000 contract and he never did any of the work himself at all, he sublet it to fifteen or twenty other contractors?—A. Yes, that is the grading.

Q. Now then, if the Commission had divided J. D. McArthur's Section F into three or four divisions, they would have had perhaps twenty tenders?—A. And twenty sets of contractors to deal with and twenty troubles.

Q. They would have had the twenty tenders anyway?—A. Yes.

Q. And where did the trouble come in, because in any case they had to give estimates to all the sub-contractors; they had to keep track of all these sub-contractors just as if they were chief contractors?—A. Pardon me, it is hardly that way. We have our own engineers, we get the estimates from the Commission, they give us the estimate on the whole section in one lot; we then subdivide them according to our subcontractors and the Commission has nothing to do with that.

Q. Yes, but these Commissioners were public servants, they were being paid to get this work done in the most economical way they could for this country; now then, if Mr. O'Brien were building that work, he would have thought about the money end of it, would he not?—A. Well, I should say so.

Q. You seem to think that these Commissioners only should think about the trouble to themselves. If they could save, for instance, on the M. P. Davis contract $1,000,000 by letting it to Mr. O'Brien in the first place, it would have been a laudable act on their part to have done so, would it not?—A. I suppose so.

Q. You know, as a matter of fact, that M. P. Davis got that contract one year before he sublet it to you?—A. All of that.

Q. He never did a thing on it?—A. He was unable to reach it.

Q. He knew that when he tendered?—A. I don't know that.

Q. Didn't he? Do you suppose he tendered for a ten or twelve million dollar contract without knowing where it was, I don't think he would do that?—A. Contractors do foolish things.

Q. You knew it was inaccessible?—A. At the time?

Q. Yes?—A. Well, we did not give it much attention at the time because we were not tendering.

Q. Why didn't you tender?—A. We were not close enough to it.

Q. You were not close enough to what?—A. Close enough to it with our western work.

Q. You mean you were not close enough to it geographically?—A. Yes.

Q. That work was advertised, why did not you tender on it?—A. Well, I may say this to you right on that point; we had a very large amount of security up at the time and the Bank of England has its limits and we were not inclined to tender on that at that particular time.

Q. You did not want to put up any more money?—A. No, we had so much money in securities and drawback and plant that we did not feel disposed to put up $300,000 there to carry out that work. We were not close enough to it.

Q. One of the great stumbling blocks in your road was putting up more security?—A. That is a very great stumbling block in the way of all contractors.

Q. When you took these contracts Nos. 16 and 17 east of Lake Nipigon, off the hands of Davis & Company, did you go over the work?—A. We sent a man over it.

Q. And you looked it over?—A. Yes.

Q. And you made a bargain with Mr. Davis to take it off his hands?—A. Yes.

Q. Were you substituted for him in the contract, or are you sub-contractors under him?—A. I think if my memory serves me right, that we just stepped into Mr. Davis' place.

Q. And his security remained?—A. Yes.

Q. Did you put up any security?—A. Not in that case, we are paying our share of the amount.

Q. What do you mean by saying you are paying your share of the amount?—A. We would have to pay that money anyway.

Q. Do you mean to say that you pay the interest on the deposit?—A. Half of it.

Q. And you also pay Mr. Davis 10 per cent on the gross?—A. Yes.

Q. How much more did you pay him?—A. That is enough I suppose.

Q. I think so, but I was just wondering how generous you might be?—A. It is conceded that I am generous.

Q. On that work which you took from Mr. Davis, do you think you will have a fair profit?—A. Yes, I think we will make a fair profit.

Q. You took the contract after sending a man over the work?—A. Yes sir.

Q. Did you negotiate this bargain with the Davises?—A. Well, I concluded it in Montreal.

Q. When you negotiated with the Davises, did they want any more than 10 per cent?—A. Yes.

Q. What did they ask you?—A. 15 per cent I think.

Q. Did they also ask you to pay interest on the deposit?—A. Well you see it was like this: Mr. Davis' deposit was up. His deposit is there yet. I said to them; the first thing to do was to leave that undisturbed, the Commission is paying 3 per cent for this deposit, and the money will cost us more. Of course we could not get it for 3 per cent so I suggested myself paying the other 3 per cent, which made 6 per cent and it cost Mr. Davis nothing. My suggestion was accepted and that is the way it stands.

Q. So that you and the Government are paying the interest on the deposit?—A. Quite true.

Q. And Davis gets clean and clear 10 per cent on the gross cost of the work?—A. Yes.

Q. How did you bring him down to 10 per cent and give away half a million dollars difference between the 10 per cent and the 15 per cent?—A. We would not give him more than that and besides there were others who were negotiating as well as us and they were not offering as much, so that I think we went a little better to get the work.

Q. As compared with the prices on the adjoining contracts, how do the prices on contracts 16 and 17 compare?—A. I think they compare favorably with the prices on the adjoining works.

Q. That is to say they are higher?—A. That is what I mean.

Q. You could afford to pay Davis 10 per cent on the gross cost and still make as well out of it as you did on the adjoining works?—A. That is my recollection of the figures.

Q. That is the way you viewed it?—A. Yes.

By Mr. Gutelius:

Q. Coming back to the security and what you have told us as a reason for your not bidding on contracts 16 and 17 originally, you would have bid on that work if no special security had been demanded of you?—A. We might have done so.

Q. Don't you think that in the light of the fact that you did take it up later on that you might have bid?—A. We might, although we had our hands pretty full at the time.

Q. Now referring to the newspaper advertisement in connection with these Transcontinental contracts, which provided that the Commissioners could demand any security they liked, if that same provision had been made by a railway company or a railway promotion syndicate such as Mackenzie & Mann, would you

have put your original marked cheque in, knowing that a private concern or a railway company could have demanded from you any securities that they desired; would you have considered it a business proposition. I refer now to the phrase: "Such additional security as the Commissioners may require"?—A. We would hesitate a good deal.

Q. It would not be a business proposition?—A. It would occur to us as giving them powers that we would not like to have in their hands, because they might ask us, after our tenders were submitted, to put up such security as would be altogether unreasonable, and it is too much power to have in the hands of anybody, I think.

Q. If they wanted to, they might defraud you out of the deposit that you put up with the tender?—A. Well the powers given there are very great; it would depend on the men, of course.

Q. Don't you think that many good Canadian contractors, I mean standing high financially, were deterred from bidding on the National Transcontinental Railway contract because of that very security clause?—A. I do not know of any that were deterred. Of course, I am free to admit this: that had the sections been cut into smaller sections and the security made smaller, that there no doubt would be more tenders, there is no question about that.

Q. I noticed recently in looking at a report of the royal commission on the original construction of the C. P. R., that that Commission show in their report the various tenders given for the different sections, and these tenders average about twenty tenders to every section. Now, when I see nine contracts on the Transcontinental Railway, in each case there being only two bidders, the idea occurred to me that this additional security which the Transcontinental Railway Commissioners demanded is a reason for having only two tenders instead of twenty. Does it not look like that to you?—A. What you say there is right; that open book in the advertisement there would scare off perhaps a good many contractors and I have no doubt it did. We had the moral courage to go in.

Q. Did you know when you sent in these tenders that you were absolutely in the hands of the Commissioners to the amount of security that would be required?—A. I say their powers were very great. Yes, that is so, especially in the first two contracts.

Mr. Staunton:—But the provision as to that is the same in all the contracts.

By Mr. Gutelius:—The reason the subsequent contracts were not so alarming to you, was because in the first two or three you found they did not take advantage of the whole 33 per cent?—A. Well, I do not know that any percentage was mentioned; it was only 15 per cent we put up.

By Mr. Staunton:

Q. But you signed an agreement that you would put up to the extent of 33 per cent?—A. Is that in the contract?

Q. Yes. In your tender, in fact, you say so, you knew it when you signed your tender. It says: "And we do hereby agree that in case of refusal or failure to execute the said contract with the Commission and also to furnish an approved security to an amount not exceeding one-third of the estimated cost of the work, you shall forfeit your deposit." You knew it at the time?—A. Is this the original tender?

Q. Yes, they are all the same?—A. They are not exactly all the same.

Q. On that point they are?—A. Oh, yes.

By Mr. Gutelius:

Q. Recognizing, as you must have, the tremendous powers of the Commission in demanding additional security after holding this first big marked cheque, did you not have some information that led you to believe that they were not going to hold you up to the whole amount of the 33 per cent?—A. No. You see, as

I remarked before, when we tendered first and when O'Brien & Mullarkey were not the accepted tenderers, and when Mr. Hogan became ill, I came into his place on the contract. We then were up against it as to security. We remonstrated with the Commission at that time and we were here quite a long time getting that security fixed up.

Q. They wanted a larger security?—A. They wanted 15 per cent but we were not inclined to put that up and we asked them to accept a cheque. We had a siege here at that time but were not successful. They exacted 15 per cent security. I remember myself saying at the time that I had no recollection of any such security being demanded by any Government or any company in the country. 15 per cent was wery large and it was no use.

By Mr. Staunton:

Q. Did they offer to let you out of the contract?—A. No.

Q. Did you say: I cannot put up the security; did you put up any bluff at all?—A. I did not say whether we would put up the security or not.

Q. Did you say you would not?—A. We never went that far.

Q. Was it said to you, if you don't put up the security you can drop out?—A. Not to me.

Q. Did they tell you they would keep your money?—A. I have no recollection of their saying that, that was understood.

Q. Did they ever say: now, Mr. O'Brien, put up that security or withdraw, did you ever have a position like that taken with you?—A. No, I have no recollection of that, it never went that far, they would not do that with me, I don't think.

Q. What did you understand from them would happen if you did not put up the security?—A. They did not say that.

Q. Did they intimate it to you?—A. No, I cannot even say that.

Q. What did you expect would happen?—A. Well, if we failed to put up our security I suppose we would have to step aside.

Q. And lose your deposit?—A. Well, we would come back for that later on and see what we could do; you know what contractors do.

Q. From the negotiations that took place between you and the Commission or the individual members of it, what conclusion did you come to would happen to you if you failed to put up the security?—A. They did not intimate to me anything of the kind, they simply asked for the security.

Q. You had no idea that you would get your money back and be allowed to go if you did not put up the security?—A. No.

Q. You had no idea of it from any of these Commissioners?—A. No, they sat down flat on the 15 per cent and we had an awful siege of it. We tried every means to get them down to the original cheque and we were not successful, we could not do it.

Q. Do you know anything yourself about the actual work on any of your contracts?—A. Not very much.

Q. When you tendered for this work I suppose you took an interest in your tender?—A. If I was here I did.

Q. You signed it, did you not?—A. I do not know that I did. I do not think I signed them all. I commissioned someone else to sign for me.

Q. In your contract you signed a tender which contained a unit price list. No. 4 of that unit price list is called solid rock, and you were to get a price per cubic yard for item No. 4, what is solid rock?—A. Is that the specification there?

Q. Yes, what is solid rock to you as a contractor in that specification?—A. It depends on the specification under which we were working.

Q. What does solid rock mean to you as a contractor?—A. Solid rock is that which can best be removed by blasting; anything that is difficult and expensive to take out is solid rock, from a contractor's point of view.

Q. Forget this contract for the moment, and tell me what does a contractor understand by solid rock?—A. That which is expensive to move is solid rock excavation; that which is as expensive to move as solid rock excavation is, should be classified as solid rock.

Q. If you saw a sand bank that was as hard as you could imagine, do you say that that could be called solid rock?—A. Yes, if it becomes sandstone.

Q. I did not say sandstone?—A. You said as hard as it could be.

Q. I did not mean that it was in the form of sandstone, I meant in the form of sand, can you imagine clay being solid rock?—A. I cannot imagine clay to be solid rock.

Q. But that would come within your definition when you said that solid rock was anything that could best be removed by blasting?—A. Yes, continuous blasting, you asked me what was solid rock, and I say that rock could be mixed with clay.

Q. Keep along the line you started on: you said anything that could best be removed by blasting?—A. Continuous blasting.

Q. You have found indurated clay that could best be removed by blasting?—A. Yes.

Q. You never had the confidence to ask that that should be put in as solid rock when there was no stone in it?—A. If we were entitled to it under the contract.

Q. Have you ever got solid rock prices for that clay when there was no stone in it?—A. I do not just remember. We struck a lot of that in the Province of Nova Scotia in the eighties. If it was as expensive to take out as solid rock, it should be classified as such.

Q. Did you ever get paid for clay, where you had the three classifications of solid rock, loose rock, and common excavation; did you ever get paid for clay with these classifications at solid rock price?—A. I have no recollection.

Q. If you signed a contract embodying the three classifications, solid rock, loose rock, and common excavation, in your most bountiful frame of mind you would never expect clay to be classified as solid rock?—A. Ordinary clay?

Q. Yes?—A. Oh, no.

Q. You would not have clay, no matter how hard, if it was not mixed with stones, classified as solid rock?—A. I think not.

Q. So therefore when you talk of solid rock you mean rock?—A. Do you mean rock ledge?

Q. You mean rock, stone?—A. Yes.

Q. And when you talk of indurated clay, you expect that is to be loose rock, don't you?—A. Well, it depends. As I said before if it is mixed with rocks of all sizes and kinds, then I think it should be classified as solid rock.

Q. Where did you ever get it before?—A. I never worked on specifications like that before.

Q. I am not talking about specifications, when, under Heaven, did anyone every pay you for clay mixed with rock of less size than a cubic yard, as solid rock, before the Transcontinental Railway commissioners set the pace?—A. I have no recollection myself, except as I say in Nova Scotia in the eighties.

Q. In Nova Scotia, where you had signed a contract for solid rock, loose rock, and common excavation, did they ever pay you solid rock prices for any kind of clay intermixed with stones of less than a cubic yard?—A. I have no recollection of it.

Q. You have no recollection, have you, of anybody or of any railroad ever paying solid rock prices for clay intermingled with stones of less size than a cubic yard?—A. Well, where the stones are thickly assembled.

Q. Keep outside of the Transcontinental practice now, and give your answer? —A. I said before, so far as the other roads are concerned and under the specifications under which we were working, I had no recollection that it came that way, and perhaps we were not properly entitled to it.

Q. Have you worked for the C.P.R.?—A. Yes.

Q. Have you worked for the Canadian Northern Railway?—A. Yes.

Q. You have worked for these corporations in grading?—A. Yes.

Q. Now then, have you not, as a matter of fact, in the case of the Transcontinental Railway, been paid for material as solid rock for which you were only paid as loose rock in these other cases, never mind the specifications now?—A. I have no doubt as to that.

Q. That is right, is it?—A. That is right I believe.

Q. To use a familiar phrase, this assembled rock was a new one on you when you got into the Transcontinental?—A. Do you mean that assembled rock is a new phrase?

Q. Yes?—A. Yes.

Q. It is a new phrase and a mighty good one for you, is it not?—A. It is very appropriate.

Q. When did you last have a contract with the C.P.R. or the C.N.R.?—A. The Canadian Northern, two or three years ago.

Q. How did the prices compare with the Transcontinental prices?—A. My memory does not serve me as to that, I cannot recollect what our prices were on the Canadian Northern.

Q. Well, what would be more favorably impressed on your mind, how did the profits compare?—A. I do not know that a contractor should be telling what his profits are.

Q. Did they compare favorably on the Transcontinental?—A. I do not know about that. I think on some of our sections, the Canadian Northern was just as profitable.

Q. But these sections on the Canadian Northern that were just as profitable as the Transcontinental, were rare birds?—A. Well, they might not be in the majority.

Q. I suppose, as a matter of fact, your most profitable sections on the Transcontinental were where assembled rock did most congregate?—A. Where it existed, yes.

Q. And assembled rock was very plentiful on section B, in the vicinity of La Tuque?—A. Yes.

Q. That was the best section you had, was it not?—A. Well, I do not know that, I am not prepared to say it was the best, do you mean in so far as rock is concerned?

Q. So far as profit is concerned?—A. I do not know that, it might be.

Q. If you were betting you would pick that out as a winner, would you not? —A. Well, I do not know.

Q. That is the banner contract, is it not?—A. I am not so sure about that.

Q. I would like you to think it over?—A. Pardon me, you see we were chief contractors you understand on that section.

Q. I know, and you did not get as much fat out of it, you think?—A. Let me explain that. We have about the same margin of profit on that section that we have on the others.

Q. As a matter of fact there was more profit on the entire work on that section than on any others?—A. Our margin of profit would be the same as on any other section.

Q. But in that case you had such an enormous amount of assembled rock?— A. We only had a margin of profit.

Q. But the profit to you and the subcontractor combined would be larger on that than on any other section?—A. I cannot say about the subs.

Q. I am not talking about your individual profit, I am talking of the profit on the work above actual cost, was it greater on that than on any other contract?—A. On account of the mileage?

Q. Yes?—A. And the magnitude of the work?

Q. Yes?—A. Around La Tuque I happened to be there myself. Around La Tuque, these cuttings are full of what they call assembled rock.

Q. I am talking about La Tuque now, and I am asking you if on that contract there was not in your opinion a larger gross profit than on any other contract in which you were engaged?—A. Not to us, I don't think.

Q. No, not to you, but the gross profit to everybody?—A. As to that I cannot well say.

Q. What is your judgment?—A. My judgment in the matter would not be worth much; some of our contractors did not make money.

Q. If you don't know, you need not tell me; you were at La Tuque?—A. Yes.

Q. I was at La Tuque, Mr. Gutelius and I were there, and we went all over that work, and we took the engineers over it, and I can tell you this; that we asked them to point us out where there was any cementing material, and they could find none, and afterwards in their evidence they said that they did not think there was any on the whole work. Now can you tell me where I can find anything of that extraordinary thing, cementing material, in La Tuque district?—A. I cannot name a cutting, but the cuttings we went over at that time with the old chief engineer and the whole outfit, these cuttings were at that time in progress and there was nothing else but thickly assembled bunches of rock, gravel, and stone of all kinds, and we had to use blasting.

Q. Mr. Schreiber said that he could find no cementing material?—A. No cementing material?

Q. No cementing material. The assembled rock was there all right, I am not denying that, but what we have been searching for with great anxiety is this cementing material and it seems always to be like the fish, a little further up?—A. Well, we came to the conclusion that day when we saw the work in progress that there was lots of cementing material in some of those cuttings and that at all events they were one mass of boulders.

Q. They were a mass of boulders, we will not quarrel about that, but what I want to get at is this cementing material. If anyone can tell me where it is, I can send someone there to see it. Mr. Doheny has not pointed it out to us and we tried him. It looks to me as if this was clay and sand mixed with these stones, am I wrong?—A. There was no clay in the cutting I have in mind.

Q. It was a fine white sand?—A. It was not exactly sand.

Q. What was it?—A. It was closer to what you call cementing material. These rocks laid there as thick as they could be in the cutting. In fact, the cutting was what is called assembled rock mixed up with this stuff, so much so that we could not do anything else than blast it.

Q. Don't mind the blasting, you would not build a house with that cementing material?—A. No.

Q. It would tumble down, it would not cement?—A. If you could put cement in it it would.

Q. You did not salt these cuts by putting cementing material in them?—A. Oh, no, we are bad enough without doing that.

Q. Now, Mr. O'Brien, frankly and candidly, is there any cementing material, as an ordinary man would understand it, along there at all, is it not just simply

that these small stones and large stones are packed tightly in in clay or fine sand, is not that a fair description?—A. It may not be what you call conglomerate or cementing material, but it is just as difficult to remove as solid rock.

Q. I am not quarrelling with that?—A. I think some of the cuttings were more expensive than solid rock.

Q. I am asking you to be fair with me and to say if I am properly describing these cuts, when I say that they were composed of stones, large and small intermixed, and packed into sand or clay?—A. It might be that.

Q. What you saw might be that?—A. No, not in that big cut, it was not that, there was no clay at all in this cut.

Q. It was sand?—A. It was gravel and boulders.

Q. Let us get away from the boulders?—A. I want to get away from the sand.

Q. Now, I could not find anything but sand or clay, or boulders, or stones there, did you?—A. I counted that mixture of all kinds in these cuttings as just as difficult to remove as solid rock, and requiring blasting, I will say positively as a practical railway man, without fear of successful contradiction, that that could best be removed by blasting. It is the most economic way and the only way it could be done.

Q. I agree with you that it might be most economically done that way and you may be right, but so will a cutting which might be entirely cemented gravel, would it not? Take a cutting of this hardpan, or cemented gravel, you have to remove that by blasting every inch of it?—A. It is the most economical way of doing it.

Q. That is loose rock?—A. It is better to take it out that way than to wear it out, and there are only two ways of doing it.

Q. Well, that is loose rock and the specifications say so. Section 35 of the specifications says:—

> "35. All large stones and boulders measuring more than one cubic foot and less than one cubic yard, and all loose rock whether in situ or otherwise, that may be removed by hand, pick or bar, all cemented gravel, indurated clay and other materials, that cannot, in the judgment of the engineer, be ploughed with a 10-inch grading plough, behind a team of six good horses, properly handled; and without the necessity of blasting although blasting may be occasionally resorted to, shall be classified as 'loose rock.'"

A. That says that blasting may be occasionally resorted to, but the other refers to continuous blasting.

Q. You cannot get away with it as common excavation, it is loose rock?—A. It is solid rock excavation, according to this specification.

Q. What is?—A. Anything that may best be removed by blasting.

Q. Not at all, here is what is described as solid rock excavation:—

> "Solid rock excavation will include all rock found in ledges or masses of more than one cubic yard, which, in the judgment of the engineer, may be best removed by blasting."

A. That word "masses" there, is masses of anything.

Q. No, it reads:—

> "Solid rock excavation will include all rock found in ledges or found in masses."

Of course, for the purposes of this contract, you read it as you describe, but when you saw that first and put your first interpretation upon it, would you ever have thought of that?—A. Yes, sir, the very first shot out of the box, that was the interpretation put upon it by A. R. McDonald and Mr. Barwick and myself. We did not come to the chief engineer and ask any questions either with reference to that or train fill, we took the documents as we found them.

Q. Then, what sort of cemented gravel is to be loose rock?—A. That would be, I suppose, where you found it occasionally, and where an occasional shot would be required to take it out. That would probably be classified as loose rock.

Q. Then what kind of indurated clay would be loose rock?—A. The same.

Q. Do you mean to tell me that you thought indurated clay under this specification would be solid rock?—A. No.

Q. But you did say so just now. You said that all masses of any material which could be best removed by blasting, was to be solid rock?—A. It is just like this: Solid rock excavation includes all rock found in ledges. That is so since the time of Adam. And then it reads: or masses of more than one cubic yard which can best be removed by blasting. It does not say solid rock.

Q. Then it means indurated clay?—A. It might.

Q. Where did you ever, in the whole course of your experience, make the contention on a contract that you were entitled to be paid solid rock prices for indurated clay?—A. I never had these specifications before.

Q. You said just now that from the beginning you construed this specification in such a way as you thought it entitled you to solid rock prices for indurated clay, which could best be removed by blasting?—A. I said anything in masses.

Q. That brings in indurated clay, does it not?—A. Yes.

Q. Did you ever before put in such a claim as that?—A. We never had the opportunity, because we were not entitled to it under our other specifications.

Q. Did you ever, even against the Transcontinental Railway, set up a claim to be paid solid rock prices for clay of any kind?—A. Well, we did not specify the material.

Q. They never allowed it to you; they have never allowed you solid rock prices for indurated clay?—A. If they did not, and it could best be removed by blasting, then they were doing us an injustice.

Q. But you know they did not?—A. I was not close enough in touch with the work to know.

Q. No person on your works, to your knowedge, has ever claimed until today that they are entitled to solid rock prices for indurated clay, have they?—A. I am not aware.

Q. You said you were alive to that fact in the very beginning?—A. Yes.

Q. Then why did you not see that you were getting solid rock prices for it?—A. The great complaint is that we are over-classified and getting something we are not entitled to.

Q. There is not a single claim to be paid on solid rock prices for clay?—A. If it is stuff that can best be removed by blasting.

Q. Did you ever make any claim for solid rock prices for cemented gravel?—A. Personally?

Q. Yes?—A. I did not.

Q. Did your partners, to your knowledge?—A. I am not aware.

Q. Did they ever claim solid rock prices for any material in which there were no stones?—A. I cannot say, I am not aware.

Q. It would mean a difference to you of many millions of dollars if you did or did not get solid rock prices for indurated clay or cemented gravel?—A. Yes, if we were properly entitled to it and did not get it.

Q. I would have thought that if you were alive to your rights from the very beginning, you would have taken sufficient interest to have at least made a claim during the last four or five years?—A. Let me say this, that this time I was at

La Tuque it was in the very early stages of the work, and we had a battle royal on the ground, and as a result of that meeting there were instructions issued by the late chief engineer and he issued a blue print.

Q. And that blue print distinctly says that you shall not be paid solid rock prices for any kind of clay or material in which there is no stone?—A. It may, I do not know.

Q. You saw the blue print?—A. I just had a glance at it.

Q. And you never protested against them excluding indurated clay and cemented gravel as solid rock?—A. We have been protesting all the time from our office, but I do not know what the nature of it was exactly. I say right here now that any material in these cuttings that can be economically removed by blasting, we are practically entitled to solid rock excavation for that.

Q. That is to say, that all stuff that is not free shovelling is solid rock?—A. No.

Q. You have to blast everything that is not free shovelling?—A. Not continuously.

Q. When you come to a place where you don't blast it, it is free shovelling?—A. Where we don't require to blast it.

Q. Everything that is not free shovelling, has to be blasted, for its economical removal?—A. Yes.

Q. And your contention is that everything that has to be blasted is solid rock?—A. Not at all, the specification provides for that.

Q. What is your contention?—A. Where the cutting is either one thing or another mixed up, and can best be removed by blasting, I don't care what it is, if that cut is a solid mass of indurated earth and we cannot take it out any other way economically except by blasting, we must resort to blasting, and we are properly entitled to that as solid rock excavation.

Q. Would you say that all material that is not free shovelling is solid rock?—A. I did not say that.

Q. Free shovelling is the only thing that you do not class?—A. I do not know about that.

Q. Be serious, don't you blast everything that does not come under the head of free shovelling material?—A. Yes, an occasional blast.

Q. Don't you blast everything that is not free shovelling?—A. We might.

Q. And therefore, according to your argument, that is all solid rock; they have done you terribly if that is so?—A. That is my claim and my contention.

By Mr. Gutelius:

Q. Before you signed your first tender did you have the idea that that word "masses" would be interpreted to cover other than rock larger than a cubic yard?—A. I do not know as to that.

Q. Did you form your opinion before you signed your first tender?—A. Yes, that is the only time Mr. McDonald and I were here together. There were several omissions in the first specification and one of them was "train filled". Mr. McDonald wanted to come down and discuss the matter with the late Chief Lumsden, and Mr. Barwick and I were a unit in saying: no, when we come to train fill, which was omitted altogether, we would deal with it. We dealt with this at the same time. We read the thing over very carefully. There must be something more than solid rock to be classified as such from the reading of that clause 34. If it was only solid rock in ledge that was to be specified as such, they need not put that in about masses.

Q. If you did not discuss it with the chief engineer and did discuss it between yourselves, was not that really a joker in the pack when you were making your first bid?—A. It might be so, it might be considered so.

Q. That expression is a little strong?—A. Yes, and the train fill was the same thing.

By Mr. Staunton:

Q. What do you mean by the train fill?—A. There was no figure for it.

By Mr. Gutelius:

Q. If you had that idea in mind, that you could get solid rock for anything that could more economically be done by blasting, did you convey that idea to your sub-contractors?—A. I do not think we did.

By Mr. Staunton:

Q. I should think you would not like to put your pen to it?—A. We gave the sub-contractors whatever we got, you know.

By Mr. Gutelius:

Q. If there was any advantage to you in connection with that, on account of your interpretation, you would not get the benefit of that unless you wised up your subs?—A. Quite true, but it was immaterial to us as chief contractors, whether we got a margin on loose rock or solid rock; it would have been the same per yard.

Q. You were up at La Tuque with the engineers at that time?—A. Yes.

Q. That discussion at La Tuque was Woods and Lumsden on one side, and the balance of you on the other?—A. That is right.

Q. You were satisfied when you left La Tuque that you had the Commissioners with you?—A. Well, I could not say just then what the result of the discussion was.

Mr. Staunton:—Lumsden says the Commissioners argued with the contractors?—A. Well with regard to that, I may say that I myself read that very clause. I was the only one that happened to have the specifications in my pocket and I read the clause in this way: Solid rock excavation will include all rock found in ledges; I said there can be no dispute about that, that the chief engineer agreed, and I said there must be something in the mind of the framer of the subsequent part of the clause, that something more than solid rock in ledges would be classified as such.

Mr. Staunton:—Sure, boulders

A. It says: masses of more than one cubic yard which can best be removed by blasting. It does not say boulders nor anything else. There happened to be two lawyers among the Commissioners, the chairman, Mr. Parent and Mr. McIsaac. They took this thing out of my hands and they commenced reading it, and they were all trying to interpret it then. We had it interpreted long before that.

Q. What did the two lawyers say?—A. They did not say anything just then and we did not know where we were when we left.

Q. Did they seem to favor your view or the other view?—A. They were at sixes as to how it read. I think the legal minds took the view I was right. The ex-chief was inclined not to express himself.

Mr. Staunton:—Lumsden said he said it had to be rock, and the Board agreed with the contractors?—A. When I asked the late chief engineer what was solid rock under the specification, his words to me were; solid rock is solid rock, and loose rock is loose rock, and I said it was so since the time of Adam, but what was it in the specification.

Q. What did he say to that?—A. He repeated that twice, and then, of course, we had to get into some kind of a discussion. I wanted to know what it was in the specification and when I read that in the way I did, he seemed to be a little dumbfounded about it.

By Mr. Gutelius:

Q. What reduction did you make in your solid rock prices, because you discovered this joker?—A. I cannot say as to that. Our price was low on solid rock, going to show that we were not building on that very much. I think it was the lowest in the schedule; $1.50, that is a low price for rock.

Q. You would not like to say how much reduction you made, because you expected masses to be made up of loose rock material?—A. No, we figured it more closely on that account, but I cannot say that.

Q. Now, separating this assembled rock, stone on one side, if the stone was less that a cubic yard, it would be called loose rock?—A. Separating them one by one they might.

Q. And the matrix material, if separated, and had no stones in it would be loose rock, or common excavation, would it not?—A. It might be.

Q. And the reason you say it is solid rock is because the two are associated in such a way as that they can be most economically removed by blasting?—A. That is it, exactly.

Q. And you never knew of that interpretation being placed on it in any other specification in your career as a contractor?—A. I have no recollection of it.

Q. Do you think that specification was drawn by a person who was inexperienced in framing specifications?—A. I would not like to say that. I tell you the opinion I would offer on that question would be that I thought whoever framed the specifications were trying to be fair and to pay for that which would cost as much as solid rock or could best be removed by blasting.

Q. From the information before us, it appears that in your various contracts you have 1,000,000 cubic yards of solid rock, that is composed of stones less than a cubic yard, and a matrix of sand or clay or indurated clay which when combined formed this material which is known as assembled rock, what reasons can you give this Commission for not having it classified in its component parts as loose rock, and your estimates revised accordingly?—A. What reason can I give?

Q. Yes, why would it not be right and fair for us to recommend that that reduction be made?—A. I have this reason to give, that inasmuch as we were chief contractors, as I said before, and we have paid our sub-contractors right along on the estimates given to us, from time to time by the engineers of the Commission, and on which we have paid our sub-contractors in the best of good faith, that we do not think the estimates should be revised. In fact, I think it would be the grossest injustice to us. If there was anything wrong we had no knowledge of it and the estimates should not have been issued and they should not have been certified to, and we should not have been instructed to pay the sub-contractors on that basis, in fact, we were urged to pay them in many cases.

By Mr. Staunton:

Q. That is what you consider the real meritorious reason for being paid?—A. That is one reason.

By Mr. Gutelius:

Q. Is there anything else you would like to tell this investigating Commission that has not been brought out in our discussions to-day?—A. I do not know there is anything I could recall at this moment that I would like to tell. I have nothing at the moment that I think it would be necessary for me to state. I do not know what you have in your minds.

Mr. Staunton:—Mr. Gutelius does not want, after this Commission is closed, for a contractor to come and say: if they afforded me an opportunity I could have explained things and given evidence which would have put another light entirely

upon the facts which were before them. We have asked all we could think about, and if you have anything more that you think would help us or would put a different light upon the facts which are before us, you can tell us now, in connection with anything that you have been interested in, in this work?—A. I repeat that at the moment I can think of nothing more. If I do at some future time and think about it, I may.

Mr. Staunton:—If anything occurs to you before we make our report, that you wish to have added, will you communicate with us.

Mr. O'Brien:—Yes.

The witness was not further examined.

(NATIONAL TRANSCONTINENTAL INVESTIGATING COMMISSION, OTTAWA, FEB. 4th, 1913. EVIDENCE TAKEN IN N.T.R. OFFICES, BEFORE THE CHAIRMAN AND MR. GUTELIUS.)

E. F. Powers, sworn:

By the Chairman:

Q. How long have you been engaged in concrete bridge foundation construction?—A. Fifteen years I have been connected with deep water work in different ways.

Q. Taking all your work together in the fifteen years, what do you think it would amount to in dollars?—A. I could not give you it. We have been doing about $200,000 worth of work a season; that is different kinds of work.

Q. So that it might amount to as much as $3,000,000?—A. Yes.

Q. You were a sub-contractor, were you, under Mr. Kitchen?—A. Yes.

Q. In the name of Powers and Brewer?—A. Yes.

Q. What was your sub-contract?—A. To complete all the concrete masonry under Kitchen & Company's contract.

Q. You used a mixture of one-two-four, instead of a mixture of one-three-five, in massed contract in some portions of your work, did you not?—A. I did not quite catch that.

Q. You used a mixture of one-two-four instead of one-three-five, as specified in the contract?—A. Yes.

Q. In some of your massed concrete pedestals?—A. Yes.

Q. Why did you do that?—A. We did that through instructions from the engineers.

Q. Where did you use it?—A. In the pedestal shafts only.

Q. Where?—A. At Salmon River, Caton Brook, and a part of the pedestal shafts at Graham Brook.

Q. Take the Little Salmon River first: why did you use at the Little Salmon one-two-four?—A. We were instructed to use it.

Q. By whom?—A. Through chief engineer Grant, and Mr. Balkam.

Q. Did they instruct you personally to use it?—A. Yes.

Q. Why did they instruct you to use it?—A. Owing to the size of the structure and the great weight to be added on to these concrete blocks.

Q. Are those the only reasons?—A. And probably a question of the material not being sufficiently good enough to use the leaner mixture.

Q. Are you a professional concrete man?—A. No, I do not say that I am.

Q. What experience have you had in it?—A. I have been in concrete the last ten years.

Q. Was there anything the matter with the gravel or sand at the Little Salmon, in your judgment?—A. No.

Q. It was all right, was it?—A. I would think it was.

Q. Was it any different from any other gravel or sand that you used in other portions of the work?—A. No, I cannot say that it was, with the exception of Little River, where we brought in outside sand.

Q. You say that at Little River it was inferior to this?—A. Yes, a portion of Little River.

Q. What you mean is that the sand at Little River was not as good as the sand at Little Salmon?—A. No.

Q. So there was no good sand used by you which was better than this sand at Little Salmon?—A. Except the sand we brought from Magaguadavic, so called.

Q. Did you use any 1-3-5 mixture at Little Salmon?—A. In the footing courses.

Q. Is that all you used there?—A. And in the bodies of the abutments, I think the west abutment.

Q. And in the remainder of your work at Little Salmon you used 1-2-4, did you?—A. Yes.

Q. Did you get any instructions in writing to use 1-2-4?—A. Yes.

Q. Who were the instructions in writing from?—A. From concrete inspector Lowe.

Q. What date?—A. On April 27th, 1909.

Q. What does the inspector say?—A. To put in 1-2-4 in all shafts, under letter same date from divisional engineer Ballock:—

"George Lowe, concrete inspector, Salmon River, N.B.: Dear Sir:—1-3-5 concrete is to be used in all pedestals, footings and west buried piers, and both in footings and pier bodies, the pedestal shafts are to be built of 1-2-4 mixture, without fillers.

"Yours truly,

"GUY R. BALLOCK, *Div. Eng.*"

Q. Is this the original?—A. No, a copy.

Q. Where is the original?—A. It is in our fyles. I did not think it was necessary.

Q. Was that letter handed to you?—A. Yes.

Q. By the concrete inspector?—A. Yes.

Q. Did you say anything to him about the price at that time?—A. Yes.

Q. What did you say to him?—A. I asked if it was to be paid for at 1-2-4 prices, at our price, and he said it was.

Q. I see in this letter Mr. Kitchen wrote to us, that you wrote on the 4th November to him:—

"We have asked to be allowed to use this gravel in a 1-2-4 mixture, and we were told that we might do so, but we would only be paid for 1-3-5 mixture, as the price for the 1-2-4 mixture was too high. This we consider unjust, for the other contractors are putting in a 1-2-4 mixture and are being paid at their 1-2-4 prices for it".

That does not accord with your statement that you have given me?—A. We never thought for a minute of going on with the work—

Q. Never mind what you thought about it; that is not in accord with what you have told me just now, that when you were ordered to do it you were promised a higher price?—A. Well, we would not go—

Q. How do you reconcile these two statements?—A. I do not quite understand you.

Q. You stated to me that you were ordered in writing to use 1-2-4 mixture in the parts of the structure mentioned in the letter which you have just read, and that you were told by the inspector that you would be paid a 1-2-4 price: that is correct, is it not?—A. Yes.

Q. Now, in your letter written on November 4th, 1908, to Mr. Kitchen, you state that you were told you would not be paid a 1-2-4 price. How do you reconcile these two statements?—A. I do not see any answer to that. I do not quite catch the meaning of it.

Q. It should be pretty clear. You wrote a letter, did you not, on the 4th November, 1908?—A. Yes.

Q. To Mr. Kitchen?—A. Yes.

Q. And you stated in that letter: "We have asked to be allowed to use this gravel"; that is the gravel at Little Salmon, is it not?—A. Yes.

Q. "In a 1-2-4 mixture, and were told that we might do so, but would only be paid for a 1-3-5 mixture"?—A. Yes.

Q. Is that statement true? Did you write that letter?—A. Yes.

Q. And is that statement that you made there true?—A. Well, I should say it was.

Q. Then your statement that you were to be paid for a 1-2-4 mixture now is not true?—A. Well, we were told by someone not in authority. At the time I wrote that letter, it was not our intention to go on with a 1-2-4 mixture until we were paid for it.

Q. That letter, April 27th, 1909, is apparently written long after?—A. Yes.

Q. You put in a whole lot of this mixture before you got orders to put it in?—A. We put a lot of it in on the rings of arch culverts and were paid for it 1-2-4 the arch culverts, the first concrete work we did on Kitchen & Company's contract.

Q. Stick to the Salmon River part; you were not putting in arch culverts at Salmon River?—A. No.

Q. You are speaking in this letter of the Salmon River?—A. Yes.

Q. And you told me that you were told you might put it in 1-2-4 with that gravel, but that you would not be paid for it. Now, where else did you put it in?—A. At Graham Brook.

Q. How far is Graham Brook from the Little Salmon?—A. I judge about three miles.

Q. Why did you not use 1-3-5 at Graham Brook?—A. I do not know; we had the same instructions.

Q. Had you another letter about Graham Brook?—A. The concrete inspector at Graham Brook had a letter the same date.

Q. Have you that letter?—A. No; I think it was the same date.

Q. What was the matter with the gravel at Graham Brook?—A. I am not prepared to say.

Q. You do not know anything wrong with the gravel there?—A. We were ordered to put in a mixture and we adhered to it, 1-3-5.

Q. You say in your letter:—

"We are advised by the division engineer that all of the sand which we planned on using in the concrete work at Salmon River, Graham and Caton Brook has been condemned as unfit for the work, and it has been suggested that we bring in sand from Magaguadavic. We are bringing in this sand at great expense to use at Little River, but in the case of the other work, the cost of the sand would be more than doubled, owing to the long haul. At the time we contracted with you for this work, Mr. Mitchell, in company with Mr. Balkam and Mr. Balloch and in the presence of yourself and the writer, examined the sand at Salmon River and Little Salmon River, and pronounced it O.K., and it was mainly owing to this sand being accepted that we entered into contract for this work. We have had a hard season and have spared

no expense to get all the culverts finished, so as not to delay the grading in anticipation of better work on the viaducts next season. We have asked to be allowed to use this gravel in a 1-2-4 mixture and were told that we might do so, but we would only be paid for a 1-3-5 mixture, as the price for the 1-2-4 mixture was too high. This we consider unjust for other contractors are putting in 1-2-4 mixtures and are being paid at their 1-2-4 prices for it. If some satisfactory arrangement cannot be made, we would like to cancel our contract with you."

Mr. Kitchen goes on to say that Mr. Grant came down in January, 1909, and went over the work with you. What do you say Mr. Grant did when he came down?—A. On January 1st, 1909, Mr. Grant told Mr. Balkam in my presence that he would allow 1-2-4 in all shafts of pedestals at Salmon River. I asked him if that meant the entire work of all the concrete, and he said no, the shafts only, and I remember asking him the yardage; he told me about 7,000 yards; that looked a little larger; and then again I thought it might cover Caton and Graham Brook, where we put in about that much of 1-2-4.

Q. Did you ask him if it covered Caton and Graham Brook?—A. No. I asked him how many yards at 1-2-4.

Q. You did ask him about the Salmon River then?—A. Yes.

Q. You had no right to think it was in some other place?—A. No.

Q. On that authority, whatever it amounted to, you put it in in the three places; is that right?—A. Well, we had instructions to put it in—at least, the concrete inspectors had instructions to see that it was put in at Caton and Graham Brook.

Q. They told you so?—A. Yes.

Q. Who told you so at Caton and Graham Brook?—A. The inspector.

Q. What was his name?—A. I cannot recall his name; I think it is Patterson; I would not be positive.

Q. Can you say how much more concrete did you put in, in making a 1-2-4 mixture than you would have put in, in making a 1-3-5 mixture—how much more cement?—A. Well, it would be pretty hard for me to answer that question.

Q. You can tell it roughly?—A. The engineers made tests of the sand and gravel from time to time, and they would have to change the quantity of cement—

Q. What does the "1" stand for?—A. One of cement.

Q. And the "2"?—A. It would be sand.

Q. And the "4"?—A. It would be crushed stone, or whatever you might use.

Q. So that you would use those proportions in a cubic yard, if you used that mixture?—A. Well, that would not make a cubic yard.

Q. It would, if you had enough of it; 1-2-4 is only a division of a cubic yard?—A. Yes, that is quite right.

Q. And one seventh, in that case, would be cement, would it not, in a 1-2-4 mixture?—A. I am not quite clear on that.

Q. There are seven parts and only one of cement; so that one seventh would be cement?—A. Yes.

Q. In seven yards of concrete there would be one cubic yard of cement, would there not?—A. Well, it might.

Q. That would be the proportion theoretically?—A. Yes.

Q. If you make it 1-3-5 it would be one-ninth of cement; eight parts of sand and gravel and one of cement?—A. I am not familiar enough with that to tell.

Q. Why should you be paid any more than for the additional amount of cement you put in in the richer mixture, when it was done in order to relieve you from going abroad for gravel? Can you answer that?—A. No.

Q. The only difference in cost to you was the additional cement, was it not?—A. Well, more than that, Mr. Chairman.

Q. What would be the difference in cost to you?—A. There was more waste in connection with the bags. We have a great number of bags of cement to carry to our work; more loss in bags, and, generally, mixing 1-2-4, we just mix that proportion and put it in. We do not mix up a yard. We mix it both by hand, and it would cost the same to mix a batch of 1-2-4 as 1-2-5, only we do not get the quantity of concrete at each mixture.

Q. You did not mix this stuff by hand?—A. The greater part of the pedestal shafts; they were only small.

Q. Do you know what it really cost you?—A. No.

By Mr. Gutelius:

Q. Don't you know what your cement cost you?—A. Well, we could hardly determine that. You understand, hauling cement practically for miles in the country, there is more or less loss, loss of bags, and it would be hard to determine the cost.

By the Chairman:

Q. I should think there would be an infinitesimal difference in the loss. However, that is what you say. That is the difference to you?—A. Yes.

Q. In your judgment it was not necessary to make the change, anyway, was it?—A. I think the sand would make an average concrete, using it in a 1-3-5.

Q. How many thousand dollars' difference does it make in the work?—A. I could not tell you off-hand; I really do not know.

Q. Did you get any cost at all on your work, or any price as to how you were doing, or did you just do the work and draw the money and take the chances on whatever profit there was in it?—A. I cannot say that: it is hard to refresh your memory on work that has been done three years.

Q. Did you make this concrete work larger than the specifications required?—A. You mean the shafts?

Q. Yes?—A. No, we built our shafts as directed.

Q. But you had a specification for them?—A. We had a plan.

Q. Did you exceed the plan?—A. No.

Q. In quantities?—A. I am not so sure about that. The shafts varied in height.

Q. Did they vary in thickness?—Not on top.

Q. Anywhere?—A. Well, along the shaft, of course, the greater the batter the greater the base would be.

Q. That would be shown on the plan?—A. No; they built the pedestals, as far as I can understand, to suit the contour of the ground.

Q. Was there any specification showing the size of these pedestals?—A. Yes.

Q. I am asking you now, did you exceed in the quantities the amount shown on the plan in these pedestals?—A. I am not familiar with that.

Q. You ought to know something about this business?—A. Well, we were directed to put in a pedestal a certain height here, and a certain height over there, as the case might be. There were not any two, I do not think, the same height from the footing course to where the shoe plate of the steel rested.

Q. The height would be regulated by the contour of the earth?—A. Yes.

Q. But the size of the pedestals would not be, except as to height?—A. No, the size on top would not be.

Q. Nor the size at the base?—A. The base increases as it goes down.

Q. Did you build the culverts according to the specification?—A. Most of them, I think, we were ordered to increase the depth of the footing on account of requiring a good foundation.

Q. Were you ordered to increase the depth of the footings in many cases?—A. I do not remember, Mr. Chairman; in a few cases, I think.

Q. Was it necessary, in your judgment?—A. Yes.

Q. You say there were only a few cases of that kind; is that correct?—A. Well, I could not tell you the number of them off-hand; no doubt there would be several on a contract of that size.

Q. Do you remember how many culverts you put in?—A. No.

Q. Did you have any claim for extra work?—A. Yes.

Q. What for?—A. For diverting watercourses with culverts and increasing the size of foundations.

Q. What did your extras amount to in cash?—A. I do not remember.

Q. Was it a large or small amount?—A. Not a large amount at all.

Q. $1,000?—A. Yes, there would be more.

Q. You know about what it was, do you not?—A. I cannot recall the exact amount.

Q. You can recall it approximately? Give me it in round numbers?—A. I would not like to say just what it was.

Q. What is your recollection?—A. I would think two or three thousand dollars.

Q. All over your whole contract?—A. Well, it would be—yes, it would be more than that over all the contract. Some of our work was sublet.

Q. What prices did you get for 1-2-4?—A. Off hand I could not give you the exact figures.

Q. Surely you remember something about this?—A. I have not seen our contract for so long.

By Mr. Gutelius:

Q. I have a copy of your contract before me, and it reads: "concrete, 1-2-4 $10; 1-3-5 $8.50; 1-3-6 $8?—A. Yes.

Q. The difference between 1-3-6 and 1-2-4 then, in your contract with Mr. Kitchen, was $2 a yard?—A. Yes.

Q. 1-3-5 is $8.50; it was to be 1-3-5 originally in the pedestals and 1-3-6 in the footings; was that the original mixture?—A. I am not sure.

Q. It was understood with you that the price for 1-2-5 of $11.50 was to be used, was it not?—A. Yes.

Q. And this Little Salmon River viaduct is on your contract?—A. Yes.

Q. So that it would be included?—A. Yes.

Q. Your price for 1-2-5 is $8.75?—A. Yes.

Q. So that the difference, so far as you are concerned, is between $8.75 and $10 for the concrete in question?—A. Yes.

Q. I know you are a concrete man, and I know you have some general ideas about the cost of various mixtures, and I want to help you get this cleared by suggesting that the difference in the amount of cement used in 1-2-4 and 1-2-5 is one bag of cement when you are making batches of a cubic yard. Does that sound about right to you—one bag more of cement in the 1-2-4 than in the 1-2-5? Just roughly?—A. No. I think it would take more.

Q. Did you use one yard batches in your machine?—A. In some of our machines I did.

Q. Does not an extra bag of cement strike you, as a concrete man, as being about the difference between 1-2-4 and 1-2-5? About three bags for 1-2-5 and four bags for 1-2-4 in mixing yard batches? Does that not look about right?—A. No, I cannot say that it does.

Q. Well, what is right?—A. We used seven bags of cement to a yard, 1-2-4.

Q. What was the size of the bags?—How many bags in a barrel?—A. Four.

Q. You used seven bags to a yard?—A. Yes; no fillers allowed in the work.

By the Chairman:

Q. How many bags in the 1-2-5?—A. I cannot say; there was not very much 1-2-5 used.

By Mr. Gutelius:

Q. That is what you used to start with. Would five bags be about right?—A. Five would be about right.

Q. The difference, then, between 1-2-5 and 1-2-4 is two bags of cement, or half a barrel?—A. Yes.

Q. What would that cement cost you at the railway station?—A. I do not recollect just what it would be, it is so long ago.

Q. Well, you know within ten cents?—A. If I remember right, it was $2.20.

Q. How far did you have to haul it to Salmon River?—A. Some of it nine miles.

Q. How far did you haul the remainder?—A. Fourteen.

Q. Would the average haul be twelve miles?—A. The average haul would be about 13 miles.

Q. How many barrels would they haul on one sled?—A. It varied, according to the road ronditions.

Q. Did you haul on your own teams?—A. No.

Q. What did it cost you to have it hauled?—A. It cost us 40 cents a barrel and in some cases sixty.

Q. The average 50 cents a barrel?—A. Yes.

Q. That would make your cement cost you $2.70 a barrel?—A. Yes.

Q. And your difference between 1-2-4 and 1-2-5 being half a barrel, would be $1.35 a yard?—A. Yes.

Q. I see that you bid for 1-2-5 $8.75 and for 1-3-5 $8.50; 25 cents a yard difference between those two mixtures, when the cement difference is practically the same. According to that statement, you would be losing $1.10 if you had to build very much 1-3-5, as compared with your price for the 1-2-5? (No answer.)

Q. The point I want to make is that the difference in cost to you between these two mixtures of cement, according to your own figures, which have been liberal, is $1.35 a yard?—A. Yes.

Q. Referring to the letter which the chairman read to you a few minutes ago, in which you stated to Mr. Kitchen that other contractors were being paid 1-2-4 price for 1-2-4 mixture, what other contractor do you refer to?—A. I refer to a bridge at Four Mile Brook on Lyons & White's contract.

Q. Do you happen to know that that was a special arrangement between the chief engineer's office and Lyons & White?—A. No.

Q. Simply hearsay?—A. No.

Q. Why did you make the statement?—What authority had you for making the statement?—A. From the contractor who was putting in the concrete.

Q. He told you they were getting the 1-2-4 price for that material?—A. Yes.

Q. Did you know it was the result of a special arrangement or bargain?—A. No.

Q. If he had told you it was the result of a special bargain, you would have endeavoured to make a similar bargain?—A. No.

Q. You would have tried to have done the same thing as he did?—A. No, I cannot say that.

Q. Did you have any definite understanding with Mr. Balkam or Mr. Foss that you were to receive $10 a yard for that 1-2-4 concrete?—A. Verbally.

Q. With either of these gentlemen?—A. Yes.

Q. Did not Balkam simply tell you he would put it in?—A. He and Mr. Grant would allow 1-2-4 mixture.

Q. You are resting on Mr. Balkam and Mr. Grant telling you personally that they would allow 1-2-4 price for that 1-2-4 mixture?—A. Yes. If they would allow 1-2-4, we had a price for 1-2-4, the same as any other mixture. If they had said 1-2-4 I would expect to be paid for it in the same way. They mentioned 1-2-4.

Q. But what they really intended to do, as I read it, is that they agreed to permit you to use 1-2-4 of that native sand and gravel and would pay you the schedule of 1-2-5? Permit instead of allow?—A. We had a letter from Mr. Balloch ordering us to discontinue the 1-2-4 at Graham Brook and putting in 1-2-5.

Q. I have a statement before me showing that on your work there was used 1-2-4 concrete in masses, item 59a, 5136 yards, covering work on 37 different structures; does that look about right?—A. Yes; that is on the 31 miles—

Q. On the whole contract of Mr. Kitchen?—A. Yes.

Q. I would like you to be quite clear as to whether Mr. Grant said he would allow you 1-2-4 for that concrete. Do you remember distinctly that Mr. Grant said it?—A. I have a note of it here, taken at the time, both Mr. Grant and Mr. Balkam, in my presence.

Q. You are quite sure about that?—Yes. He told Mr. Balkam in my presense that he would allow 1-2-4 in the pedestal shafts.

By Mr. Kitchen:

Q. When you were ordered that two would not be paid for the 1-2-4 mixture, did you intend to go on using 1-2-4 and get paid for it at the 1-2-5 price?—A. No.

Q. When you were ordered to go on with the 1-2-4 mixture, did you expect to be paid for that mixture at the 1-2-4 or 1-3-5 price?—A. At the 1-2-4 price.

Q. I thought I heard you say you had a letter from Mr. Mitchell, the chief inspector of cement, writing to you from Ottawa, saying the sand was all right?—A. Yes.

Q. You have not that letter?—A. No, I have a note of it here.

Q. About the payments of your estimates, were you being paid for the 1-2-4 mixture before Mr. Grant came down?—A. Yes.

Q. After Mr. Grant told Mr. Balkam this in your presence, and you afterwards received word from Mr. Balloch to go on with this work, how long did you get the 1-2-4 price?—Did you get it afterwards?—A. No; it was returned in the estimates until some time in December, 1912.

Q. Was it not 1913? You did not know about it till you got your final estimate?—A. No.

Q. You did not know it was cut out?—A. No.

Q. It was fair for you to assume it was the 1-2-4 price, and you were being paid for it right along?—A. Yes.

Q. And no talk that you would not get the 1-2-4 price?—A. No.

By Mr. Gutelius:

Q. What was the greatest depth you had to go for foundations of the footings of the Little Salmon River Viaduct?—A. 22 feet.

Q. What method did you use to reach that depth?—A. We built an open caisson and excavated inside.

Q. To the bottom?—A. Yes, and we put on rails and rocks to weight it down and have it properly braced.

Q. You had no trouble to make it 22 feet with that character of open caisson construction?—A. No; and we used the pumps all the time while we were doing it.

Q. To keep out the water?—A. Yes.

Q. Supposing you had been compelled to go to 40 feet, would you have used the same method of sinking?—A. The same method of sinking, but with a heavier style of dam.

Q. That is, you would puddle on the outside?—A. Yes; we used pockets to make it puncture through.

Q. Filled with concrete?—A. No, filled with sand, so as to increase the weight sufficient to carry down the open caisson with your excavation.

Q. Suppose you had a pier 40 feet long and 16 or 18 feet wide, and 40 feet to solid foundation, would you have adopted the same method of construction?—A. Yes. The same method of construction, with a heavier type of cutting edge, and use concrete for weight instead of sand.

Q. That is, your puddling space would be filled with concrete?—A. Yes, to make the walls stronger.

Q. To make the walls strong enough to withstand the external pressure?—A. Yes.

Q. If it were necessary to go through eight or ten feet of water, would you use the same method?—A. Overlaying the mud?

Q. Yes?—A. Yes.

Q. In such a case as last described to you, would you, under any circumstances, use pneumatic caisson, 40 feet, 18 by 40, ten feet of water? Forty feet total depth; you have 10 feet of water then 30 feet of mud, then solid foundation; would you use the same method?—A. Yes.

Q. Would it be cheaper than the pneumatic caisson?—A. In my experience it would be.

Q. You might tell us of the deepest of your open caisson pier construction?—A. The deepest done to date would be 69 feet, in 38 feet of water, at low water, to begin with.

Q. And at high water?—A. About 62.

Q. And you went into the mud how deep at that place?—A. About 23 or 24 feet into the mud.

Q. Where was that pier located?—A. At the Bear River bridge on the Dominion Atlantic Railway.

Q. Do you think of another one deeper than 40 feet from the top of the water?—A. We have one we are preparing for now 105 feet from low water to ledge.

Q. To the bottom of the foundation?—A. Yes.

Q. And that is being built in open caisson?—A. Yes.

By the Chairman:

Q. Why did you build it with open caisson? Was it because you could do it cheaper?—A. Yes.

Q. Could you do it as quickly?—A. Yes, when I consider our excavation is done by means of orange peel buckets.

Q. The open caisson work is cheaper and more expeditious than the pneumatic caisson?—A. Yes, in my experience.

Q. Is there a marked difference in the price?—A. Well, yes, I would say there was. I have known cases where there has been as high as $14 a yard paid for excavations in pneumatic caisson.

By Mr. Gutelius:

Q. Whereas in the open caisson you could do it for——A. The average price would be $5 to $7.

Q. So that the cost of the excavation in the open caisson is about half what it would be in the pneumatic caisson?—A. Yes.

(EVIDENCE TAKEN IN N.T.R. OFFICES, OTTAWA, APRIL 9th, 1913.)

ALEXANDER MACDOUGALL, sworn:

By Mr. Gutelius:

Q. You are a member of the firm of O'Brien, Fowler and Macdougall?—A. Yes.

Q. Did your firm have a contract with the Commissioners of the National Transcontinental Railway for the construction of an engine house at Graham?—A. Yes.

Q. Was this to be paid for by schedule prices, or by a lump sum?—A. Schedule prices.

Q. With whom did you arrange these schedule prices?—A. The Chief Engineer Lumsden, and Chief Engineer Grant, and I think some of them with MacPherson.

Q. But the final effect of whatever arrangement you made was with the Commissioners?—A. Yes, they approved afterwards.

Q. Did you build this engine house yourself?—A. Well, we sublet it.

Q. To whom did you sublet?—A. Farlinger and Macdonald.

Q. Among the schedule prices, I notice that you received $17 a cubic yard for concrete of 1-3-6½ mixture: is that correct?—A. Yes.

Q. The records show that the total in connection with this concrete was $90,191?—A. About 5,000 yards, yes. Could I make an explanation there?

Q. Yes.—A. The price of the concrete was taken from the price of concrete in the main contract, you know.

Q. Then you received $17 a cubic yard for concrete in bridges and culverts?—A. Yes, and walls of buildings and foundations; it ran from $16 to $20, and $17 was arranged as a fair price.

Q. What did you pay these sub-contractors per yard for concrete?—A. $10.

Q. And you paid them on the same yardage basis that your own estimates were made?—A. Yes.

Q. How did the other items in the schedule of prices with your subcontractors compare in the matter of profits with the concrete prices?—A. Do you ask me if the percentage of profit on the other item was the same?

Q. Or something near like it?—A. No, it was not.

Q. Was there a fair margin of profit in each of the items?—A. Not on each of them, no.

Q. Not a fair margin?—A. No.

Q. What is a fair margin?—A. A fair margin ordinarily—oh, fifteen per cent, I presume.

Q. Have you any idea what the total profits of that contract with Farlinger and Macdonald amounted to?—A. In the neighbourhood of $50,000, practically.

Q. Is this the only building you had under your concrete contract?—A. No; the Armstrong roundhouse.

Q. How did that compare in prices with the one at Graham?—A. A little higher.

Q. Margin of profit a little higher?—A. No.

Q. About the same?—A. No, a little less.

(NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATING COMMISSION; QUEBEC, MARCH 12th, 1913.)

(EVIDENCE TAKEN IN THE OFFICES OF THE TRANSCONTINENTAL RAILWAY.)

ALFRED CURZON DOBELL, sworn—

By the Chairman:

Q. You are a practising advocate in Quebec?—A. Yes.

Q. And have practised here for several years?—A. Yes; eleven years, I think.

Q. I believe you have a power of attorney to act for the Duchess of Bassano in connection with her business in the Province of Quebec?—A. No, it was only regarding the property she owned up Champlain street in the City of Quebec.

Q. Did you make any lease of any portion of the Duchess of Bassano's property?—A. On the 25th February, 1908, I gave a lease, and this lease ran out on the first of May, 1909, but it was tacitly renewed from year to year. There was a provision in the lease that I could give the lessee six months' notice to quit.

Q. What you mean is that, after the expiry of the lease by effluxion of time, the tenant continued in possession of that property as a tenant from year to year, subject to be put out of possession on six months' notice, ending with any one year?—A. Six months' notice at any time.

Q. What was the name of that tenant?—A. Napoleon Martineau, junior.

Q. Where does he live?—A. He lives in Quebec, and he rented this property at that time for an ice house.

Q. Where is this property?—A. 2525 Champlain Ward.

Q. What do you mean?—A. It is designated and known upon the Cadastral plan, and in the book of reference for Champlain Ward in the City of Quebec under number 2525.

Q. And it is situated where?—A. Near the west end of the City on the River front.

Q. Below the citadel?—A. Below the citadel, further west than the citadel.

Q. But below the cliff?—A. Yes.

Q. What is the size of the property?—A. A piece of land measuring 37 feet by 60 feet.

Q. 37 feet frontage, running from the street to the water?—A. Well, I could not tell you that.

Q. Look at the plan. Do you know whether it ran to the water edge?—A. The building, no.

Q. But the property?—A. No, it does not.

Q. Describe the property that is covered by the lease you speak of?—A. Well, it is a property running alongside of Champlain Street, with a measurement of 37 feet.

Q. Does it run back to the water?—A. No, it does not.

Q. What is there between it and the water?—A. If I remember right, part of the old wharf.

Q. There is land between it and the water?—A. Well, it is made land.

Q. But who owns the water front there?—A. We do.

Q. Did you rent him the water front?—A. No, it is just the size of the building.

Q. You say "I leased to him a piece of property 37 by 60, entirely covered by a building"?—A. Well, he put up the building.

Q. He put up a building which entirely covered the land leased to him?—A. Yes.

Q. This building fronts on Champlain street, but does not go down to the water's edge?—A. No.

Q. You did not lease to him the land between the water's edge and the building?—A. No; of course, remember, he put up the building.

Q. Napoleon Martineau put a building on this land, did he?—A. Yes.

Q. What was it?—A. An ice house.

Q. And he continued your tenant of this property for how long?—A. Well, he paid me rent up to the 1st May, 1912.

Q. And what was the rent he paid you?—A. It was $75 a year.

Q. And that lease was in writing?—A. Yes.

Q. And you have a copy of it in your possession?—A. Yes.

Q. Then did you terminate his lease on the 1st of May, 1912?—A. Well, I told him in the summer of 1911 that we had received—when I say we, my brother and myself look after my mother's estate, which adjoins the Bassano property, and we ran the two properties more or less jointly—that we had, I cannot say whether it was to me or my brother, received notice that we were not to relet any property after the 1st of May, 1912.

Q. From whom did you say you had received that notice?—A. I cannot say that I got it myself, but I understood that it came from the Transcontinental Commission.

Q. Either to you or to your brother a notice was given by the Transcontinental Commission that they intended to take this property?—A. A part of it, and that we were not to relet.

Q. What did Napoleon Martineau do?—Did he leave the property on the 1st of May?—A. I first of all must tell you that some time in September of 1911, he came to me and asked me if I would give him a complete discharge of all rent that he owed me, and I told him that he owed me a certain amount.

Q. How much did you tell him he owed you?—A. He owed me either a year or a half year's rent, I have forgotten which.

Q. In September, 1911, Napoleon Martineau came to you respecting this property?—A. Yes.

Q. What did he want?—A. He wanted to settle for the rent for the balance of the lease.

Q. He wanted to make a settlement with you for his rent up to the 1st of May, 1912?—A. Yes.

Q. And then did you make a settlement with him?—A. I took an order on the Garrison Club.

Q. You did have a settlement with him?—A. Yes.

Q. So that you had no further claim on him personally for rent up to the 1st of May, 1912, respecting that property. What did he want to make this settlement

with you for?—A. I understood, either from him or from somebody else, I cannot recall which, that his desire to make this settlement with me was so that he might be able to sell the icehouse.

Q. To whom did you understand he wished to sell the icehouse?—A. I subsequently learned it was to Raoul Bergevin.

Q. Who is he?—A. He is a haberdasher and tailor in the City of Quebec.

Q. How did you subsequently learn this fact?—A. It was when Adolphe Chevalier, to whom I had rented the balance of the property, showed me a deed, by which he had sold all his rights to Raoul Bergevin, and we also learned that Raoul Bergevin had bought Chevalier's rights in the property.

Q. I want you to tell me how you learned that Bergevin bought Martineau's icehouse?—A. I learned this either from Adolphe Chevalier or from Mr. J. P. Cantin, a Notary Public, of Quebec.

By Mr. Gutelius:

Q. Did you give Martineau any notice that the lease would terminate on the 1st of May, 1912?—A. Yes, I had told him during the summer I would not be able to release it.

By the Chairman:

Q. Why did you tell him that?—A. On account of the notice we had got from the Transcontinental. I may say that I understood that the Transcontinental Railway intended to expropriate this property, but whether I had any legal notice I cannot recollect.

Q. Have you any more personal knowledge from Martineau respecting the sale which he afterwards made of the icehouse?—A. No, sir.

Q. Have you any personal knowledge from Bergevin that he purchased the icehouse from Martineau?—A. I do not know Mr. Bergevin by sight.

Q. You have had no conversation with him?—A. No.

Q. Respecting this property, is that all the information you can give us?—A. Yes, regarding that part of it.

Q. Your evidence comes to this: that you were agent for the owner of the property, that you leased the property to Napoleon Martineau, $75 a year, that he put an icehouse on the whole property leased by you to him, and that his lease terminated by mutual agreement between you and him on the 1st of May, 1912?—A. Yes.

Q. That is correct?—A. Yes.

Q. And that he knew that you could not extend the lease?—A. He knew I could not renew it.

Q. Did you lease a portion of the property belonging to the Duchess of Bassano east or west of this?—A. It surrounds that property.

Q. The whole of the property belonging to the Duchess of Bassano on Champlain street, on which this icehouse, of which you have been telling me, is situated, had a frontage of how much on Champlain street? It is approximately 450 feet?—A. Yes, approximately.

Q. And did you not lease a portion of that property to a man named Adolphe Chevalier?—A. Yes.

Q. What frontage has that property that you leased to Chevalier on Champlain street? Tell me, roughly speaking?—A. It is the 450 feet, deducting the frontage occupied by the icehouse. The Chevalier property, therefore entirely surrounds the icehouse, excepting the street frontage.

Q. It is an irregular piece of land, running to the water's edge?—A. Going down to low water mark.

Q. Are there two piers on it?—A. Yes, I believe so.

Q. And it has two piers running out into the water?—A. Yes.

Q. These are all ruinous piers?—A. They are in a fair condition.

Q. You let the land we have been endeavouring to describe to Chevalier?—A. Yes.

Q. When did you let it to him?—A. On the 1st of October, 1908.

Q. Under a written lease?—A. Before Notary Campbell, of this City.

Q. At what rent?—A. It varies.

Q. Read the clause about the rent?—A. The sum of $350 for the first year, expiring on the 30th April, 1910, the sum of $375 for the second year, expiring on the 30th April, 1911, and the sum of $400, for the third year, expiring on the 30th May, 1912.

Q. It was a three year lease?—A. Yes.

Q. Any right to renew?—A. No.

Q. Did he occupy the property?—A. Yes.

Q. What with?—A. He had a repairing slip for schooners and barges, and such like.

Q. What was his business? He was a ship repairer?—A. Ship repairer.

Q. Did he build a slip there?—A. He built a slip there himself.

Q. Was it a moveable structure?—A. Yes, it could be removed.

Q. It was a wooden structure, put in for the purpose of holding vessels while they were being repaired?—A. It was a moveable cradle, that could be slipped under a ship, and pull it up on the bank.

Q. On rollers?—A. Yes. The rollers were, if I remember right, wooden rails.

Q. It was a contrivance for loading a boat into the water and hauling it up on the land for repairs?—A. Yes.

Q. It was a moveable structure?—A. Yes.

Q. Had Chevalier any interest in that property, excepting as a tenant for three years?—A. No, sir.

Q. Had he any right to acquire any interest in the property?—A. No.

Q. Then he was simply a tenant and no more during all the time he occupied it?—A. Exactly.

Q. His interest terminated on the 30th April, 1912?—A. Yes.

Q. And he could remove his slip?—A. Oh, yes, as long as he gave me back my property on the 1st May, 1912, I had no further interest.

Q. And you had no pretence to claim you owned the cradle or slip?—A. No.

Q. I have always understood a slip to mean a channel cut out in the water, with a dock on each side, in which boats floated; this wooden structure you speak of is not anything of that description?—A. No, none whatsoever; it is a cradle.

Q. It is a carriage, for carrying boats up on the shore?—A. Yes.

Q. Have you any more information about what Chevalier did with this property, as to whether he tried to sell this property, or did sell it to anybody?—A. I know personally that he sold all his rights that he had in the property to Raoul Bergevin, but he had no delivery of it.

Q. You say he undertook to sell some rights in the property to Raoul Bergevin?—A. Yes. I produce a notarial copy of deed or instrument, number 15315, a sale from Adolphe Chevalier to R. R. Bergevin, where he is described as a carpenter, and by that he undertakes to sell all his rights and interest of every description to the occupation of a certain property, more particularly known and described on a plan or book of reference for the Champlain quarter in the City of Quebec, under number 2525, which is the property I have been speaking about.

Q. And by that document he agrees to give possession on the 1st of May, 1912, and the consideration for the sale is $4,000. Does he acknowledge he has received it by this?—A. Yes.

Q. You notice that by this deed, exhibit 1, Chevalier only undertakes to sell his right of occupation to the land, whatever that is?—A. Yes.

Q. And he undertakes to deliver possession on the 1st of May, 1912?—A. Yes.

Q. And he refers to the lease which he has from you as the attorney for the Duchess of Bassano?—A. Yes, sir.

Q. I suppose he had a copy of that lease in his possession?—A. Yes.

Q. Was that lease on record?—A. I do not think we ever registered it.

Q. But it was in the possession of Mr. Campbell, the notary?—A. Yes.

Q. Who, according to this exhibit, prepared this lease?—A. He prepared the lease.

Q. So that any person dealing with Mr. Chevalier could have seen that lease with the notary?—A. Yes.

Q. Had he any right to give possession of this property on the 1st of May, 1912?—A. None whatever.

Q. So that, as a matter of fact, for the $4,000 which he received from Raoul Bergevin, he gave no consideration whatever?—A. So far as I can see, he got no value for his money at all.

Q. When did you learn about this deed, exhibit 1?—A. About the 1st October, 1911, when I returned from my holidays, Mr. Cantin, Notary Public, of Quebec, came into my office, and asked me if I would ratify deed of sale between Raoul Bergevin and Adolphe Chevalier. I said I would have to see it before I would ratify it, as Chevalier had no rights, except as tenant on the property; and he promised to bring me over the deed, to show it to me. I waited some days, and he did not come over, and I went to his office, and I was told by C. E. Taschereau, his partner, that they did not want my ratification at all, as they had got round it in another way.

Q. What is the name of the firm?—A. They divide offices, but there is really no firm.

Q. That is about all you know about that transaction?—A. Yes.

By Mr. Gutelius:

Q. Did you advise this man that you would not be able to renew his lease on account of the Transcontinental Railway?—A. Yes; I notified Chevalier during the summer of 1911 that I could not renew his lease, as I expected it was going to be taken by the Transcontinental Commission.

By the Chairman:

Q. Up to the 1st of January, 1912, did the Transcontinental Commission purchase any of the Bassano property from you?—A. No, they did not.

Q. Did they purchase the property from you up to the 1st January, 1912, that you had leased to Martineau?—A. No.

Q. Did the Commission, up to the 1st of January, 1912, negotiate with you for the purchase of either of these properties?—A. No, sir.

Q. I understand, however, that the Commission, after the 21st September, and before the 5th October, fyled an information in the Exchequer Court, to expropriate these two properties?—A. I am told the Commission did so, but I cannot vouch for it, as no papers were ever served on me.

Q. Did they do so, as a matter of fact?—A. Cannon asked me to accept the information. Mr. Cannon, who was the lawyer for the Commission at Quebec, asked me to accept service of informations respecting this part of the property leased to Chevalier, but he did not serve the papers on me, as I declined to accept service. I understand the expropriation proceedings did not cover the property which had been leased to Martineau.

Q. After Major Leonard became the sole commissioner of the Transcontinental in the summer of 1912, I believe you sold a strip through the property leased, which had formerly been leased to Chevalier, for right of way for the Transcontinental Railway?—A. I sold the whole property belonging to the Duchess of Bassano.

Q. And in that was included the property leased to Chevalier and the property leased to Martineau?—A. Yes.

Q. Then, if the Commission, in the year 1911, paid to Bergevin, or to anybody else, a sum of money to compensate them for the expenses of moving the ice house, they were paying damages for removing the ice house from property which the Commission had not purchased?—A. There is no reason why they should pay the sum of money, so far as I know.

Q. A tenant who has a right to remove his fixtures or belongings, erected by him on the leased land, by the law of Quebec must remove them, must he not, at his own expense?—A. Yes.

Q. So that if Martineau, as he did, put an icehouse on the property which he rented from you, and wished to remove that icehouse, he must do so during the currency of the lease, or within a reasonable time after its expiry, at his own expense?—A. Yes.

Q. So that if the Transcontinental Railway Commission purchased the freehold that is the land on which the icehouse stood—after the expiry of the lease, the tenant Martineau would have no claim against the Transcontinental Railway for the expense of moving his building, or the loss of trade occasioned to him for removing the building?—A. If he did not remove it he would have to give up his claim to it—surrender it to the landlord.

(EVIDENCE TAKEN IN N.T.R. OFFICES, AT QUEBEC, March 13th, 1913.)

Mr. Dobell produces notarial copy of lease between the Duchess of Bassano and Chevalier, through himself. Exhibit 5.

(Evidence of Martineau and Chevalier in French.)

F. M. Stanton, sworn:

By the Chairman:

Q. What is your position?—A. Accountant, District B, Transcontinental Railway.

Q. You produce what?—A. The register of the cheques received in connection with the right of way.

Q. Referring to cheque number 557, 1911-12, payable to A. Doucet, in re right of way, Raoul R. Bergevin?—A. Yes.

Q. Sold by Raoul Bergevin for $500?—A. Yes.

Q. Read the entry?—A. Cheque 557, 1911-12, to the order of Mr. Doucet, to be handed to notary——

Q. Name of vendor?—A. Raoul R. Bergevin.

Q. And the amount?—A. $500.

Q. Cheque sent to whom?—A. C. E. Taschereau.

Q. What is this at the top?—A. Receipted voucher sent to Ottawa; there was no receipted voucher sent to Ottawa.

Q. What is written here?—A. Cheque and voucher sent to D. Hoctor, Chief Accountant, Transcontinental Railway for cancellation, October 23rd; deed kept by Mr. Taschereau.

Q. Why was that cheque returned?—A. Because I received instructions—I do not remember exactly, but Mr. Taschereau informed us that Bergevin would not accept the cheque; why, I do not know; the land agent might know, and, as he would not accept the cheque, we notified Mr. Hoctor to that effect, letter, October 23rd, and we enclosed the cheque in question, and asked him to hold it for a while. In reply dated October 25th, 1911, Mr. Hoctor stated that he would hold the cheque until the end of the month, awaiting further news. He also noted that the deed had not been returned to him, and he presumed that it was still held by Mr. Taschereau, whereupon we wrote to Mr. Hoctor on the 26th October, asking him if he required us to send him the deed in connection with this matter, to which he replied on October 27th that this was unnecessary, and that Mr. Taschereau might hold the deed until the matter was adjusted.

Q. That is all you have to do with it?—A. I know of nothing further.

(EVIDENCE TAKEN IN N.T.R. OFFICES, AT QUEBEC, March 13th, 1913.)

ANTHEOD TREMBLAY, sworn:

By the Chairman:

Q. What is your position?—A. Assistant Land Agent.

Q. In 1911 what position were you in?—A. That is the position I was in then.

Q. In Quebec?—A. Yes.

Q. Do you know what cheque number 557 refers to?—A. I would sooner speak French.

(Answer given in French, and translated by Mr. Rivard.) It was to buy a certain gridiron from Madame Chevalier.

Q. Were there any negotiations for more than one gridiron from her?—A. No, just the one.

(Adjourned till 2.30 p.m.)

(EVIDENCE TAKEN IN N.T.R. OFFICES, AT QUEBEC, MARCH 14th, 1913)

ANTHEOD TREMBLAY, sworn:

By the Chairman:

Q. You were the secretary, were you not, of the valuators who valued the right of way and other matters between Champlain Market and the Quebec Bridge, on the St. Lawrence River?—A. Between the Champlain Market and Point au Piseau.

Q. As well as the right of way agent for the district?—A. Yes.

Q. You were assistant right of way agent for the district?—A. Yes, land agent.

Q. You produce a copy of the plan which was fyled under the statute by the Transcontinental Railway Commission, showing the lands which the Transcontinental Railway proposed to expropriate for the purposes of the railway between Champlain Market and Point au Piseau?—A. Yes.

Q. We have taken the evidence of a man named Martineau who owned an icehouse on lot 2525, Champlain Ward, and that icehouse is shown on this plan as "Icehouse, R. R. Bergevin, $3,700, September 23rd, 1911". Now that icehouse was not, according to the plan, on any land which the Commission intended to expropriate, was it?—A. Not according to the plan that we have fyled in the Registry Office.

Q. And there never was any plan fyled, was there, by the Commission showing that they intended to expropriate the land on which that icehouse stood?—A. No.

Q. And if the Commission paid this man Martineau for this icehouse, they bought it on land which they had never expropriated; is that not right?—A. That is right.

Q. Now, tell me, has the Commission bought this land yet?—A. Yes, by private sale.

Q. Do you know whether or not the Commission have any idea of expropriating this land between Champlain street and the water—all the land?—A. I know there were two propositions at the time that we made the valuation, the one was to take all the land between Champlain street and a line parallel with the centre line of the railway about fifty feet south of the centre line, and another alternative was that the Transcontinental was to take all the land between Champlain street and the river St. Lawrence.

Q. But before the Commission changed, that scheme was not carried through; there was no plan laid down?—A. There was no plan deposited.

Q. Was there ever a plan drawn?—A. Yes, and the areas calculated.

Q. But it was never fyled?—A. No.

Q. Do you know that Raoul R. Bergevin received $3,700 on the 30th September, 1911, from the Commission?—A. I can refer to my fyle.

Q. Here are your initials on it?—A. Yes.

Q. You certified that the account was correct?—A. Yes.

Q. Do you know what that was paid for? It says it is compensation for removal of ice house cadastral number 2525, Champlain Ward, Province of Quebec, $3,700; you know what that transaction was?—A. I know we made several transactions.

Q. Do you know that one transaction?—A. I do not know for which property this is.

Q. It says it is for 2525?—A. Yes, it is the Martineau ice house.

Q. You know that transaction was for the removal of the Martineau icehouse?—A. Yes.

Q. What does this mean?—A. That is a certificate of search in the Registry Office.

Q. From the evidence which we have before us, Bergevin had nothing to sell to this Commission, and had no right or claim to damages for removing the ice house, because he had only bought Martineau's claim, whatever that was, and Martineau, if he wanted to move his ice house, would have to move it himself before the 1st of May, 1912. Did you know what Bergevin's rights were?—A. No, I did not.

Q. What did you mean by putting your approval on here, "Correct, 28th September, 1911, A. Tremblay," on the voucher?—A. The voucher means that the statement as written on the voucher is in conformity with what is intended in the deed.

Q. So that you were not familiar with the transaction any more than to see that the man got what the deed provided he should get?—A. Not exactly that, because the instructions to the notary were given by me; the notary prepared the deed.

Q. What instructions did you give to the notary?—A. I gave instructions to prepare that deed—I must have written a letter. I must have said something like that, that the Transcontinental Railway has bought an ice house that belonged to Mr. Raoul Bergevin and to prepare a deed of sale for the amount.

Q. It is for compensation for the removal of the ice house, and for damages? —A. I do not remember exactly what it was.

Q. Would it not be well to see if you could find that? Could you find it?—A. I suppose so.

(Witness retired and returns with documents.) Here are the letters.

Q. This letter reads as follows:—

> "I desire to have your instructions in these transactions which we have to make with Monsieur R. Bergevin, who has acquired the following properties: Adolphe Chevalier, which he will sell to us for $5,500; Alfred Beauchamp, $1,500; the claim of Adolphe Chevalier was valued at $3,000 by the valuators, Tanguay and Giroux. Mr. Scott differs in opinion. His valuation is $6,000; Alfred Berthiaume and Jean Lachance are proprietors in virtue of an emphyteutic lease. The first pays an annual rent of $25 and the other $18.75 to George and Fred Lampson. The lease to Berthiaume expires in nine years, and that to Lachance in three years. After the expiration of the lease the buildings become the property of the Lampsons. The valuation for the properties made by the Commission are, Alfred Berthiaume $532, and Jean Lachance $815. The opinion of the advocate, Taschereau, on the manner to settle these transactions: we are to pay the price to the tenant, who has the right to enjoy during the whole time of his lease. At the expiration of that he should agree to pay the capital over to the proprietor of the freehold."

The tenant might take it and go off. He enjoys the use of the capital instead of the property in the meantime.

> "In each case, our valuation for the two properties are $1,438, and Bergevin asks us $3,000. However that may be, our valuation for the two properties is $1,348, while Bergevin claims from us $3,000."

For what does he claim? Berthiaume and Lachance?—A. Yes.

Q. The letter continues:—

> "Alfred Miller is a locataire, but the buildings belonged to him. Our valuation is $1,926 and Berthiaume claims $3,500."

Here are the instructions to the notary:—

> "We have bought from Berthiaume one ice house built on lot 2525, cadastral, in the Champlain quarter, number 96 B, according to the plan of the Transcontinental. Will you please prepare contract as soon as possible."

That is not the contract he prepared. He did not prepare a contract for the purchase of that. How do you follow that out?

Mr. Dobell:—I do not think Mr. Tremblay has to see those instructions were followed out; it was the lawyer, I think.

Q. You produce a copy of a letter dated August 22nd to C. E. Taschereau, who was a notary public, in which you tell him that you have bought from Raoul Bergevin an ice house constructed on lot cadastral number 2525, in the Champlain quarter, and 96 B on the Transcontinental Railway plan, and ask him to prepare the contract as soon as possible. The contract, which was signed, is a contract for $3,700, but the $3,700 by the contract is paid to him as indemnity and compensation for the damage which is caused to him by the demolition of the icehouse. Why did the notary draw the contract in that shape, and not in the shape in which you told him by your letter?—A. I do not remember.

Q. Who gave you your instructions?—A. The president.

Q. Mr. Parent?—A. Yes.

Q. What did he tell you in respect of this transaction?—A. Of course I did quite a lot of things, and I do not remember exactly what was done in respect of this particular case, but if I remember right, I think Mr. Bergevin came in to see Mr. Parent when he was here, and I was called in the office here and a discussion took place between Mr. Bergevin and Mr. Parent as to what he should get for the properties he had to sell to the Transcontinental, and it was agreed—we consulted the valuation that was made by the valuators, and it was agreed that the transactions should be made at the price as valued by the valuators.

Q. That is that all the properties that Bergevin sold to the Commission should be at the valuation made by the valuators?—A. Yes; that was for this transaction, and, further than that, I had instructions from Mr. Doucet to make all the transactions for the price given by the valuators, with all those landowners that would be ready to settle with the Transcontinental, whose property had been valued.

Q. In fact, you were told to make all the transactions, if they would accept the price fixed by the valuators?—A. Yes.

Q. Did Bergevin and Mr. Parent talk over the damage that Bergevin sustained by moving his icehouse?—A. Yes. In all these cases there was always a discussion between the owner and Mr. Parent, when they came to see him, and very often I was called in, and I had to give Mr. Parent my opinion of what we should do.

Q. Did you give Mr. Parent any opinion on this transaction?—A. I do not think so, I do not remember, but I would have no scruples of recommending to close the transaction at the price that was valued by the valuators, because I thought the valuators were responsible.

Q. On this transaction would you have paid him $700 if you had known he had to move that icehouse at his own expense?—A. I do not think I would, with what I know now.

Q. But you thought the Commission had to pay the expense of moving that icehouse?—A. Yes. They had acquired the right-of-way, and it was cheaper to give this man the value of his building and let him do what he liked with it than to have the Transcontinental clear the right-of-way down.

Q. Do you mean to tell me it would cost $3,700 to tear that building down? You could burn it up, could you not, if you owned it? What did you understand he got that $3,700 for?—A. That was the value of the building.

Q. You notice that the agreement does not state that, does it? You say in your letter, August 22nd, that you have bought the building from him, and that you are going to pay him that much money for it?—A. Yes.

Q. Therefore, you understood you were buying the building?—A. Yes.

Q. But the notary drew up the document as though you were only paying him damages for removing the building?—A. Yes; that is an indemnity.

Q. This document is written in French?—A. Yes.

Q. Is this a correct translation of this:—"Considering that the said party of the one part is ready to accept the indemnity in compensation for the damage which has been caused to him by the demolition of the icehouse"—that is a correct translation?—A. Yes.

Q. "In consequence these presents are made by the said party of the one part, in consideration of a sum of $3,700, which he acknowledges to have received from the party of the other part at the time of the execution of these presents, giving to these latter parties a general and final discharge for all damages which may be caused to him by the demolition of the said icehouse"—is that correct? A. Yes.

Q. That is not the transaction you told him to put through at all?—A. Not exactly.

Q. Did you notice that when you got back the paper?—A. I do not remember; I do not think I noticed that, although my signature is there.

Q. Your signature is not there; your signature is on the voucher; it is a different proposition. How did the notary get his instructions? He could not get them from your letter alone. Your letter did not give him any instructions?—A. No.

Q. Did you go and see the notary?—A. I saw him very often; I do not remember giving him any instructions about this; it is possible, of course.

Q. Did anybody else see him?—A. I do not know.

Q. Were you present when the document was signed?—A. No.

Q. Mr. Parent signed it?—A. Yes.

Q. And so did Bergevin?—A. Yes, and the notary.

Q. And they all signed it together; did the three of them sign at the same time?—A. No, Mr. Parent signed it in Ottawa, and it was sent on here with the cheque to the notary, and the party signs it when he gets the cheque.

By Mr. Gutelius:

Q. The original deed had your approval and Mr. L. A. Taschereau's approval on it?—A. Yes.

Q. Did you see Mr. L. A. Taschereau?—A. No, I did not.

By the Chairman:

Q. Do you know whether he saw that paper?—A. Which paper?

Q. The original document?—A. He must have seen it, because he signed it.

Q. Did you send it to him?—A. No, it was not my duty to send it to him.

Q. Whose duty was it?—A. The notary's duty. The notary gets the deed approved by the lawyer.

Q. If the notary does not know what the facts are, will the lawyer know what the facts are?—A. I do not think they would know anything about it.

By Mr. Gutelius:

Q. He would only get the information from the notary, and you instructed the notary?—A. Yes.

Q. I do not understand why you, then, in turn, if these people had drawn a document different from your instructions, approved of it?—A. He might get it from the notary.

Q. He is the man you instruct; you instruct the notary what to do; he does it, apparently, and it comes back to you and you approve of it; there must have been something in between your instructions and the time you approved this, to justify you in this approval. There must have been some other letter about this to that notary, I think?—A. I do not know.

Q. You might look it up and see if you can tell us to-morrow?—A. I will

(Adjourned till to-morrow.)

(EVIDENCE TAKEN IN N.T.R. OFFICES, AT QUEBEC, MARCH 14th, 1913.)

ANTHEOD TREMBLAY, recalled—

By the Chairman:

Q. Referring to the voucher which I produced to you last night, you certified that Bergevin was entitled to be paid $3,700?—A. Yes.

Q. And your letter of the 22nd August says $3,700?—A. Yes.

Q. Did you know that Bergevin was acting for the Transcontinental in making that purchase from Martineau?—A. He bought that from Martineau. When he bought that from Martineau I did not know he was acting for the Transcontinental.

Q. When did you learn?—A. Well, I never learned it officially that he was acting for the Transcontinental.

Q. When did you learn unofficially?—A. Well, during the fall of 1911.

Q. Was he paid a salary, or was he paid anything by the Transcontinental?—A. I do not know what his arrangements were.

Q. Did you ever know he only paid $2,000 for that?—A. I did.

Q. Where did you learn that?—A. I got the deed and found out.

Q. And the deed from Martineau to him showed that he only paid $2,000?—A. Yes.

Q. Did you know that before the purchase was closed?—A. I did.

Q. Did you tell anybody about it?—A. I did.

Q. Whom did you tell it to?—A. When the deed was in my hand for approval, before I approved of it—

Q. When the deed came—A. When the deed came from the notary's office.

Q. That is the deed from Bergevin to the Transcontinental Railway?—A. Yes; when this was in my hands I checked it the same as I checked all the deeds, and I had the information about what Bergevin had paid, namely $2,000, and I did not like to approve the deed the way it was, because the purchase was made only recently, and I spoke to Mr. Doucet about it, and he told me we had nothing to do with that.

Q. You then put it through?—A. I put it through then; after I had this answer from Mr. Doucet, I put it through because I was satisfied that the price in the contract was the same as the one fixed by the valuators, $3,700. Then I said to myself, to satisfy myself, that whatever Bergevin had paid—he might have get it for nothing for all I know—whatever Bergevin had paid, if what the Transcontinental had paid was justified by the valuation, my conscience was satisfied.

Q. Anyway, it was taken out of your hands; you did not make the transaction; you just put it through?—A. Yes.

Q. Is that a photograph of the place?—A. Yes; there is a front view and back view.

Q. What is that building worth as a building in your judgment?—A. I think it is worth the valuation put by the valuators.

Q. How do you figure it out?—A. We have all the details in the valuation.

Q. Are they here?—A. Yes. There is one wooden building used as an ice-house, 101,088 cubic feet, and it was put at three cents; it was in good order; it was put at three cents a cubic foot; that amounts to $3,032.64, and, besides that, a wooden stable, paper roof, dimensions 36 by 15 by 16; 8,640 cubic feet, $3,336.84, to which we add ten per cent, $2,703.52.

Q. Why do you think it is worth that much money?—A. Not so much because I know a lot about building myself, but because the valuation was made by the architect and real estate agent and business man.

Q. Do you know how much lumber there is in it?—A. Yes, there is the cubic contents.

Q. Do you know whether it would cost anything like that money to reproduce that building?—A. I could not tell you that.

Q. Can you describe the building? I mean, do you know the class of material that is in it?—A. You can have a good idea by the photograph.

Q. By the photograph, it appears as if it had been tongued and grooved. Is it tongued and grooved, or is it clap-boarded?—A. It must be tongued and grooved, because it is as tight as possible.

Q. Is it sheeted on the inside?—A. Yes.

Q. Just one sheeting?—A. Yes.

Q. What is it sheeted with, do you know?—A. No, I do not know; I did not make the valuation.

Q. Do you know the size of the studding?—A. No.

(Photographs exhibits 12 and 13.)

Q. It is funny that Martineau should take $2,000 for it?—A. That would be an evidence of what the value would be to him.

Q. Do you know anything about the Miller transaction.?—A. Yes.

Q. What was that? This is another ice house?—A. Yes.

Q. What was that valued at?—A. $2,500, I think.

Q. Have you the papers there?—A. The valuation of the Miller building is $1,926.32, plus $489.55.

Q. A total of $2,415?—A. Yes.

Q. I want you to tell me the size of the building? Have you the cubic contents?—A. 82,560 at two cents.

Q. It is not as good a building as the other?—A. No.

Q. Who was that bought from?—A. From Bergevin.

Q. Do you know what he got from the Transcontinental?—A. He got $2,500.

Q. What did he pay for it?—A. I do not know.

Q. Have you seen his deed?—A. No.

Q. Miller was a tenant too, was he not?—A. He was a tenant after we bought.

Q. Was he a tenant before you bought? He did not own the land?—A. No. He was the tenant of the Transcontinental for a certain time after we became the owner.

Q. The Transcontinental paid $2,500?—A. Yes.

Q. To Bergevin?—A. Yes.

Q. And allowed Bergevin to occupy the place, or allowed Miller to occupy the place?—A. Miller occupied the place, but he paid $25 a month to the Transcontinental.

By Mr. Gutelius:

Q. When did Miller's lease expire?—A. Last May.

Q. It was purchased in September, and expired in May following?—A. Yes.

Q. How do you keep your records in connection with the findings of the valuators——the reports in connection with the findings of the valuators? Is that public property?—A. Oh, no, it is private property.

Q. How could information in connection with these valuations become public? —A. They could not become public, unless they were stolen from my office.

Q. So that, if authentic figures were given out in connection with the details of these valuations, you think they would have to be stolen?—A. Yes, but I must say that in a couple of cases I gave Mr. Bergevin the amount that was valued by the valuators, by instructions from M. Parent.

Q. You gave some valuator's opinion?—A. Yes.

Q. Did you ever give any to Morency?—A. I never did.

Q. How could Morency get that information?—A. I do not see any way he could get it, but get it from my staff.

Q. Without your knowledge?—A. Without my knowledge.

Q. Mr. Parent, of course, was familiar with these reports as fast as they could come in?—A. Oh, yes.

Q. You worked closely with him?—A. Yes.

(EVIDENCE TAKEN IN OFFICES OF N.T.R. AT QUEBEC, MARCH 13th, 1913.)

OMAR MORENCY, sworn:

By the Chairman:

Q. You are an employee of the Transcontinental Railway?—A. Yes.

Q. District purchasing agent?—A. Yes.

Q. Do you know a man named Adolphe Chevalier?—A. Yes.

Q. Did you write him that letter, exhibit 10?—A. Yes, that is my letter.

Q. Tell me all about that letter?—A. I tell you really what I know about that, to the best of my memory. Yes, I can tell you now; he said—let me remember.

Q. You know all about it?—A. I do not want to tell you something that is not true; that is 1911; that was about some estimate—something like that.

Q. Do not put up any story on me; I have some more papers lying around? —A. I tell you, I think, if I remember rightly, that he asked me "What do you think of the estimate? Do you know anything of an estimate of the property of the "——some Duchess of something.

Q. Duchess of Bassano?—A. Yes, that is the only thing.

Q. You wrote him "Dear Sir; I sent you a telegram last night, asking you to call me up by telephone"?—A. To my private house.

Q. "And that I had something very important to tell you before you saw your man"; who is "your man"?—A. Wait a minute.

Q. You know right now?—A. That was a little information I gave him; I do not remember just what information I had to give to him.

Q. What was the man's name? He told you it was Monsieur Parent, the Chairman of the Transcontinental Railway, and you know it was, don't you?—A. No, really, I won't tell you something that I don't know very much. I have to be very careful, because I do not remember very much of the things at that time; that is a year and a half ago, and it was something very——

Q. What you were going to speak to him about——perhaps I can help your memory——was about how much money he was going to get for selling his right to the property that he had leased from the Duchess of Bassano, through Mr. Alfred Dobell?—A. What I know, I know—

Q. And he asked you to find out how much Mr. Scott, the valuator, placed on his property; was that not right?—A. I would tell you straight, I do not remember very much of that thing.

By Mr. Gutelius:

Q. For your own protection, you should tell Mr. Staunton just the truth?—A. Yes, but Mr. Gutelius, as far as I remember, I remember that Chevalier called me to my office; that was the fact; he said "I have got an offer for $4,000."

By the Chairman:

Q. For what?—A. For what you call his damage to his property.

Q. His lease?—A. Yes. He said "I know that Mr. Scott said before Mr. Hoar that five or six thousand was about the value of my property there, for the damage for the lease", and he asked me "Do you think Mr. Scott put that in his report?"?

Q. And you told him you would look it up?—A. Yes.

Q. And you said "If you want to find out anything, you had better go and see Mr. Parent", did you not?—A. What is that?

Q. Did you not tell him he ought to go and see Mr. Parent himself about it?—A. Oh, yes, I suppose I told him that.

Q. And then he went up to Ottawa to see Mr. Parent?—A. I think so.

Q. And did you not then try to find out what the damages were?—A. At that time——I knew that——not for six months, but the day Mr. Scott and Mr. Hoar went there, I knew that at that time; I knew Scott put in his report that it was $6,000.

Q. When he went up to Ottawa it was the end of July, 1911?—A. I do not remember the date.

Q. You telegraphed him "Please call me on phone immediately, Omar Morency"; and then there is written down there "Scott $7,000, Giroux $3,000". I understand you told him over the telephone how much it was, and he wrote that down on the telegram itself?—A. Yes.

Q. He called you up by the telephone before he saw Mr. Parent, to find out how much it was that Scott valued the property at; he was trying to get all he could?—A. I suppose so.

Q. You wrote him that you had sent him the telegram; you gave him that memorandum too, did you not?—A. I do not know really who made that; it is not mine.

Q. I produce this to you, but you do not know who wrote the typewritten words?—A. No.

Q. But the other is your writing?—A. Yes.

Q. Marquis de Bassano $59,764.95; Grenier $3,231.36; Martineau $3,703.52?—A. Yes.

Q. What did you give him that paper for?—A. Really, I do not remember that; I know that is my writing, but I do not remember that.

Q. You got the information; that information which is on that is correct, is it?—A. I suppose so.

Q. You did not give him this information secretly, did you?—A. Really, I tell you that appraisement was made.

Q. Did anybody in the office know you were giving out this information?—A. I do not remember.

Q. You do not want to remember very badly?—A. Certainly I do. Really, if I remember——I don't care very much—I will give you all the information possible.

Q. You are pretty slow at it?—A. Certainly, because it is a thing I never noticed.

Q. You were very careful in that letter, and you pointed out to him you had something very important to tell him, and you said "Before you see your man"; if you did not want to tell him something on the quiet, you would put the name in there. You were not born yesterday?—A. No, but I will swear that I do not remember the name of the man that is mentioned there.

By Mr. Gutelius:

Q. Mr. Chevalier has told the other side of it; you are on your oath?—A. Yes, and I am a Catholic, but I tell you really I do not remember the name of the man that is mentioned there. Now you say it is Mr. Parent; you think it is Mr. Parent. Mr. Chevalier will know that better than me; that is my writing there, but I do not remember who typewrote that.

By the Chairman:

Q. Do you typewrite yourself?—A. I can typewrite myself, but that is not mine. I remember a little of that occasion; I remember Chevalier came to my office crying, and saying "If I do not receive $8,000 or $10,000 I will be poor" and so on and so on, and ruined, and something like that, but I remember he said that in my office, and he had to see somebody about that, and he talked about Mr. Fraser, something like that, and he said Mr. Scott told before me—and I knew that—that Mr. Scott told before me that seven or eight thousand is about the right amount to give to me—something like that.

By Mr. Gutelius:

Q. Where did you find out how much Scott estimated it at? Where did you get that paper with those figures on? In your office?—A. No, it was not at my office.

Q. Whose office did you get it at?—A. I don't know; let me remember; I can get that if I see the report. We can see by the report.

By the Chairman:

Q. It is in the valuator's report?—A. Certainly.

By Mr. Gutelius:

Q. What right did you have to the valuator's report?—A. If I saw that, I must have been in that office to get it.

Q. As it looks now, you sneaked into somebody's office and got that information?—A. No, I never sneaked into anybody's office.

Q. Well, make it clear, how did you get it?—A. I won't swear, but if it is the same typewriting as this, the report has been made in my office.

Q. You remember where you got those figures?—A. That is about a year and a half ago; it is hard to remember; if it is the same typewriting as this letter—

By the Chairman:

Q. What you want to see is the report, and then you can tell where you got it?—A. Then I can tell where it had been made; I do not remember that at all; that thing has been handed to me by somebody; by the typewriter; that is not my typewriter.

Q. You would not swear that it was not Mr. Parent that you meant in that letter?—A. No, I know nothing; I do not remember.

Q. It might have been Mr. Parent you meant in that letter when you said "Your man"?—A. Perhaps.

Q. You knew he was going up there to see him, did you not?—A. Yes, but I do not remember about that; Mr. Chevalier might tell you it was Mr. Parent, but I won't swear that; because really I won't swear it was Mr. Parent.

Q. When was Chevalier talking to you about it? Was he not talking to you to-day about that? How long ago?—A. Mr. Chevalier was kicking about Bergevin, that Bergevin was getting something like that; and he said he would get an enquiry about Bergevin.

Q. How much did Bergevin get?—A. I do not know.

Q. You know Bergevin did get something?—A. Yes. The public knew it; everybody knew it—that he was buying land, selling land for the Transcontinental. That is as far as I know. If I remember well, Chevalier came to my office and he said he was to receive only a few thousand dollars for his shipyard, and he said he was poor; he would have to get seven or eight thousand dollars, something like that; I do not remember the amount, but it was higher than $4,000, and he said he did not see why—I remember he has to see somebody in Ottawa, I cannot say it was Mr. Parent.

Q. But you think it was?—A. No, I cannot say; I won't say something that is not true, but really I do not remember, not at all. Mr. Chevalier told me that, and I suppose they were making—that is my writing—that document; if you see the report and it is the same writing as this letter it will be in my office, and I suppose it was made there.

Q. Did you see Martineau? Did he come to you?—A. I do not know Martineau; is that the ice man?

Q. Yes, the ice man?—A. I know him, but I never see him.

Q. You won't tell us anything more?—A. Mr. Staunton, if I know anything I will tell you. I do not know the date that I gave that.

Q. Bergevin said that he was buying Chevalier's land for the Government, did he not?—A. Yes.

Q. Told you that?—A. No, he never told me that.

Q. Did he not tell you afterwards?—A. I knew that a long time. It was public that Bergevin was buying a house and all those things for the Transcontinental. He bought the Thibaudeau house for the Transcontinental Railway, and he said before me, about one o'clock this afternoon, "I received a subpoena to appear before the Transcontinental Investigating Commission, but I cannot go, I have to go to St. Hilaire this afternoon. I will come to-morrow". He said it was public. He said, "I purchased the house for the Transcontinental Railway, and I paid out of my own pocket, and the next day the contract was signed by the Transcontinental".

Q. He purchased the property for the Transcontinental and paid the money out of his own pocket, and next day he got it back?—A. He said that.

Q. Were you mixed up in buying these lands at all?—A. No.

Q. Nothing to do with it?—A. No, nothing to do with it.

Q. You simply got the information?—A. I do not know the date. I know at that time that everything was settled for $4,000 at that time; he told me that.

Q. Chevalier says you are a friend of his, and you just got him the information?—A. He came to my office, but I never gave him anything. When I wrote him that letter, it was because he left Quebec, and I would not go in any other office, but if he was here and I got the estimate I would let him know. Now, if he went to see Mr. Parent or Fraser I do not know anything about it. If he told you it was Mr. Parent, I suppose it was Mr. Parent. That is my writing, but I do not remember anything about that part.

Q. That is your writing, the memorandum commencing, "Mr. Scott, one of our valuators"?—A. Yes.

Q. And you say that typewriting is not yours?—A. No.
Q. But the penmanship below is?—A. I do not know the date of that.
Q. You did not write that "69"—it is in French?—A. No.
Q. 20th October, 1911, is that pencil writing not yours?—A. No.
Q. Better go away and think it over, and see if you cannot remember something more?—A. Certainly I will think it over.

By Mr. Gutelius:

Q. What you have given us now is not clear: if you stop right there it will not look quite right?—A. I would not tell you anything I was not sure of. I remember Chevalier came into my office and said he was getting something like $4,000, and Scott told me seven or eight thousand dollars, something like that, I do not remember, and I said, "I do not know if Mr. Scott put that in his report. I do not know why I put that down, because it has nothing to do with Chevalier.
Q. Did you get that information for Chevalier for nothing?—A. Certainly.
Q. Who paid for that telegram?—A. I paid myself.
Q. Did you ever get that money back?—A. No.
Q. You are out of pocket on it?—A. It is not marked whether it is collect.
Q. Yes, it is marked "Prepaid"?—A. If I paid for it I suppose I got a receipt for it upstairs. If the report had been in my office I would certainly have the information there. Sometimes the reports are made in my office.

By the Chairman:

Q. You told him to call you up by telephone?—A. Yes.
Q. "I have something important to tell you". If it had only been the $6,000, you would have told him in the letter. You would not have put him to a $2 telephone message?—A. It only cost five cents.
Q. You told him to call you up by telephone?—A. I suppose he paid the telephone.
Q. I suppose it cost him a couple of dollars, and you could have told him in the letter that $6,000 proposition. "Call me up by telephone, I have something important to tell you before you see your man". It is ridiculous to say you had not anything more to tell him than that. Do you mean to tell me you have forgotten that?—A. I won't say more; I know nothing more.
Q. Think about it till to-morrow; you know what we are after?—A. All right.

(EVIDENCE TAKEN IN N.T.R. OFFICES AT QUEBEC, MARCH 13th, 1913).

CAMILLE LOCKWELL, sworn:—

By the Chairman:

Q. What is your business?—A. Real estate and pop business. I am manager of a pop business.
Q. Lockwell and Leclerc?—A. Yes.
Q. Real estate dealers in Quebec?—A. Yes.
Q. You sold a piece of property to the Transcontinental Railway on October 20th, 1911, in Quebec, cadastral 2268?—A. Oh, yes, yes, yes, on Champlain street.

Q. You see the map in front of us here?—A. Yes.

Q. And the property is marked on the map that we show you, Lockwell and Leclerc, $8,152.65, and then ditto, ditto, $12,214.40, and then comes J. C. Hearn, $5,950 and then Lockwell and Leclerc $9,443.52. The three Lockwell and Leclerc properties are in red ink. What are those properties? What are they used for?—A. For private houses.

Q. What sort of buildings?—A. There is the corner in stone and the two others in brick.

Q. How many storeys?—A. One of three storeys, one of five and the last one is four or five again.

Q. You bought these properties, did you not, from Belanger?—A. Yes, Major Belanger.

Q. What did you pay for them?—A. We paid for those $3,500, I think; well, it is hard for me to swear: I have to see the contract. I was just calling at Mr. Parent's office, and you called me in, and it is hard to swear, but I do not remember the exact figures now.

Q. It is not $3,500; it is $35,000?—A. Yes, to the best of my knowledge, but I would not swear the exact figure; something round that.

Q. Did you sell them to the Commission?—A. Yes.

Q. How much did you sell them for?—A. I think I sold them for $30,000.

Q. Did you sell them for less than you gave for them?—A. Yes, because when the Government took that, we really believed the station would never be built there, and we had better sell them the lot.

By Mr. Gutelius:

Q. Whose money did you buy them with?—A. Our own money.

Q. Who furnished the money you bought them with?—A. We did.

Q. Yourself and Leclerc?—A. Yes, and then we had two or three friends.

Q. How much money did you and Leclerc put in of your own cash?—A. I think we just made monthly payments.

Q. What proportions did your friends hold?—A. One-fifth or one-sixth.

By the Chairman:

Q. Who put up the money to buy them? Did you pay the people for the property?—A. We paid the people for it, but Belanger settled with us; he had a share.

Q. How much did Belanger have in it?—A. Belanger had—I am not sure.

Q. He owned it all?—A. Belanger had the whole thing.

Q. You did not pay Belanger any real money?—A. Yes, we did.

Q. How much? $50 ?—A. Oh, more than that; I do not remember. We make a straight sale; it was a straight sale, Belanger to us.

Q. Did you pay him $100 in all?—A. Oh, more than that.

Q. Take another run at it, and tell me what did you pay on it?—A. We should have paid Belanger in cash a few thousand dollars; I do not remember well, but if you wait till to-morrow I will bring papers and everything and give it better. I do not see why I should be here without being advised.

Q. That is fair enough; I thought you knew what we wanted you for?—A. No, I did not. At first we thought the station was going to be there, and later on, after the election of 1911, we saw two or three weeks afterwards that Sir Rodolphe Forget stated at Ste. Anne de Beaupre, in his own county, that the station will never be there, and Mr. Parent was Chairman of the Commission, and I tried to find some of his good friends, and I went to Ottawa, and we had the offer made before the election of $30,000, and we took it, and I said: "We had better get out of this affair and put our money in other business." Belanger was the sole pro-

prietor and he was living in Winnipeg or Calgary; he was an old Quebecker; he came down to our office and he says: "I have a chance to make money with the Commission; in case the station is built on Champlain market, we will do our best to make a few thousand dollars on that"; and I says, "Belanger, we will form a little syndicate of a few friends, three or four of us, and you will stay with us, and if you take a share of it we will give you so much", I do not remember the amount, but every month we were paying to Belanger $100, I think it was $200 a month we gave him, and if we sold to the Commission we were going to share up with Belanger.

Q. And if you did not, you were to give back the property?—A. Oh, no.

Q. Were you going to give up your money?—A. Yes, and Belanger would lose his share, and he will lose one-sixth of the lot, whatever it was.

Q. Did you lose any money on the deal?—A. Certainly we did.

Q. How much did you lose?—A. Three or four thousand.

Q. Have you paid Belanger yet?—A. He is paid; there is a tax account of a few hundred dollars.

Q. Will you bring down the cheques, showing what you paid Belanger?—A. I do not know if I could do that; I will show you the notes we gave him.

Q. Will you try and prove to us that you lost money on this deal?—A. Yes, I will show you what we have paid Belanger, all the notes we gave him in settlement of the transaction, if you like.

By Mr. Gutelius:

Q. Whatever you consider necessary to show us the transaction; you can tell from what you have what would fit?—A. I do not understand.

By the Chairman:

Q. We want you to show us a genuine transaction. I am not disputing your word. I can quite understand how you would go into a transaction of this kind, and the public think there is a good deal of crooked work about these transactions, and the public say "Why, he never gave Belanger $35,000 and sold for $30,000." You were going to sell for $30,000?—A. I am not quite sure if that is the amount.

Q. How much did you want to get from it?—A. We asked, I think, $45,000; I am not sure; I think we asked $45,000.

Q. How much did you intend to take?—A. We were going to split our profit between us.

Q. You said to the Commission you wanted $45,000?—A. Yes.

Q. But what did you intend to take?—A. Our intention was to get $45,000.

Q. And divide how much profit—A. All the profit there would be in it.

Q. How much profit would there be in it?—A. There would be then about $15,000. We are a syndicate, and we make our profit on our syndicate; it is private business at our office.

Q. Did you lose money on the transaction?—A. Not me, but the syndicate loses.

Q. How much did they lose?—A. The syndicate lost two or three thousand; I would not swear the exact amount, but round that.

Q. You went up and saw Mr. Parent and coaxed him to buy it and take it off your hands at the best price you could get?—A. We took the offer that was made. We had the Exchequer Court price made to us before the election, and then after the election, after we had the news that it might happen the station would never be built there, we will sell it for less and get out.

Q. How did you coax the Commission to give you the money?—A. They were buying.

By Mr. Gutelius:

Q. You were friends?—A. They were not friends; I fought against Parent in the election.

Q. Had you any friends in the syndicate that were friends of his?—A. No.

Q. How did you work him?—A. His notary was my notary.

Q. Who was his notary?—A. Taschereau; he was well known to me, and had been working for me, and I went to Taschereau and I says "Could you give me a help in that"; and I says "If you like, we will go to Ottawa and offer the Commission the same price as they offered us" and Parent says "All right, we will give you your cheque" and I got my cheque right away.

Q. You were very lucky?—A. I was very lucky, indeed, and to-day I would not pay $30,000 for that.

Q. How much are the three places worth?—A. $18,000 to $20,000, because they are good paying houses; there are about thirteen or fourteen tenants there.

Q. I think we have all the information we require, and you need not attend further?—A. Very well.

(EVIDENCE TAKEN IN N.T.R. OFFICES, AT QUEBEC, MARCH 14TH, 1913.)

RAOUL R. BERGEVIN, sworn:

By the Chairman:

Q. What is your business?—A. Dry goods merchant.

Q. You live in Quebec?—A. Yes.

Q. Were you employed by the Transcontinental Railway in the year 1911?—A. No, sir.

Q. You were never in their employment?—A. No.

Q. Did you make any purchases of property on the right of way through Quebec for the Transcontinental?—A. No, sir.

Q. Did you buy any lands on the right of way for yourself?—A. Yes.

Q. Which ones did you buy?—A. Well, I bought some in Champlain ward: Martineau's—I will have to have a list of them.

Q. What did you buy from Martineau?—A. I bought from Martineau the building they used to put the ice in.

Q. It was an ice house?—A. Yes.

Q. This is the deed from Martineau to you?—A. Yes.

Q. And it says you bought an icehouse constructed and a stable?—A. Yes, the stable was on the back there.

Q. You agreed to allow Martineau to remain in possession, did you not?—A. To remain in possession, I think, until the 1st of May. You know I have to see the papers, because I cannot remember it all, but all that was done there was correct.

Q. That is your impression, and we will put in the deed and show it from that?—A. Yes.

Q. You knew, did you not, that his time as lessee of that property was up on the 30th April, 1912?—A. Yes, but he could renew.

Q. You knew the time was up?—A. Yes.

Q. You saw his lease?—A. I did not see it, but he told me it was finished, and I applied to Mr. Dobell, the proprietor of the ground.

Q. He had no right to renew his lease; you knew that, did you not?—A. No, I did not know that, because all the ones I bought was from persons who had a right to renew.

Q. You knew his lease was in writing?—A. Yes.

By Mr. Gutelius:

Q. Did you apply personally to Mr. Dobell?—A. No, I sent Mr. Martineau, the same as in the case of Chevalier.

Q. Do you know Mr. Dobell?—A. Yes, I know him, but I never spoke to him myself; I went there a couple of times.

Q Martineau showed you his lease, did he not?—A. I cannot remember if he did show it to me, but he told me.

Q. Do you swear that you did not know that he could not renew that lease?—A. No. I do not swear that.

Q. You did know he could not renew the lease?—A. I did not know he could renew—I did not know that.

Q. You did not know whether he could or not?—A. No.

Q. And what did you want that ice house for?—A. Well, I bought it the same as I bought the other one.

Q. What did you buy it for?—A. The same as I buy any other property.

Q. Tell me what you intended to do with that ice house when you bought it?—A. I have no reason to tell you that.

Q. Yes, you will?—A. No, I won't for sure; I cannot tell you my business.

Q. You are bound to answer these questions that are put to you?—A. I won't do it.

Q. I am going to give you all the opportunity; if you do not answer the questions, you are subject to go to jail?—A. Yes, I am ready.

Q. You won't answer me?—A. I won't answer my business.

Q. I am told you had a dishonest purpose in buying the property, and I am going to give you an opportunity to show you were not dishonest. Do you wish to avail yourself of it?—A. No, but I do not know whether the question you put to me —(Witness answers in French).

(*Mr. Rivard questions the witness in French*).

Mr. Rivard: He says he is ready to answer. He did not know what you were wanting.

Q. What did you buy that for?—A. I bought those properties to sell to the Transcontinental Railway.

Q. Mr. Rivard, K.C., is here for the purpose of explaining to you any question which I may put to you in English, that you do not understand perfectly; so that if you do not understand the question thoroughly, or have any doubt about it, ask Mr. Rivard to translate it into French; you understand?—A. Very well, I want you to understand the answer I gave before, I thought you were referring to my business.

Q. What did the Transcontinental Railway want with an ice house?—A. Well, you see they wanted to pass the road through there.

Q. They did not want to buy the ice house?—A. This is a thing I do not know, but they had to pass the road, the same as the other.

Q. But this man that owned the ice house would have to take it away, if he wanted it himself?—A. I do not know; you would have to question himself.

Q. What did you pay Martineau for this property?—A. It must be on the deed.

Q. $2,000, I am told?—A. It must be on the deed.

Q. Do you know how much money you paid him?—A. You can see it on the papers.

Q. I am asking you if you know.—A. I do not remember positively.

Q. What is your recollection?—A. I have some papers in my store, but I will have to go over and get them.

Q. Do you say you cannot recollect without looking at the paper?—A. No, because I have bought so many that I do not know one from the others.

Q. "This sale is made for the price of $2,000"?—A. I think that is correct.

Q. How much did you sell it to the Transcontinental Railway for?—A. Well, I cannot tell you; I know it is two thousand some—you must have the price there.

Q. The receipt that you gave the Transcontinental is for $3,700; is that your signature?—A. Yes.

Q. So that you bought this and made $17,000 out of it on the transfer?—A. Yes.

Q. What was the next transfer you had?—A. Miller, I think.

Q. You bought from Miller; what did you buy from him?—A. I think it is $2,500, if I remember well.

Q. You bought an ice house from him on Champlain ward?—A. Yes.

Q. Cadastral number 2316 and street number 559; Miller sold to you his ice house, did he?—A. Yes.

Q. And where is the deed?—A. The deed to Mr. Miller, well, it may be at Allaire's, the notary.

Q. He put it through, did he?—A. Well, when I bought it I put the deed through there; I do not know if it was Allaire, because I was at the other notary.

Q. Taschereau?—A. No.

Q. Couture?—A. Yes.

Q. Either Allaire or Couture?—A. Yes, I used to do business with the two; I am not sure whether it was Couture or Allaire.

Q. Did you see Miller himself?—A. Yes.

Q. Did you take his lease to the notary?—A. Yes.

Q. You knew then that Miller had no right to sell his lease to you?—A. He did not sell me the lease.

Q. What did he sell?—A. Just the building.

Q. Just the building?—A. That is all.

Q. You knew then his lease ran out?—A. The lease of the ground: I fixed that up with the proprietor of the ground, Lampson, and I paid the lease for the balance that was owed to Mr. Lampson.

Q. You saw the lease?—A. Yes.

Q. This is the lease, is it not?—A. Yes, I saw it before. (Exhibit 14).

Q. In that lease it provides that it runs out on the last day of September, 1912, and there was no right to renew it?—A. No.

Q. And you only purchased, you say, the building?—A. Yes, I purchased the building, because I had to pay the balance of the lease until the 1st of May.

Q. And you allowed Miller to remain in possession?—A. Until the 1st of May.

Q. Did you sell that ice house to the Commission?—A. Yes.

Q. How much money?—A. I do not know: I do not remember.

Q. On the second of October you made a deed to the Transcontinental Railway before C. E. Taschereau for $2,500 for the damages for the destruction of the ice house?—A. Is it not more than $2,500?

Q. That is what it says in the papers?—A. It must be more than that?

Q. That is all you have there, so far as the deed goes?—A. What it says on Miller's deed: how much did I pay for Miller's?

Q. We have not got that?—A. I can telephone to Allaire and find out.

Q. You bought a gridiron from Madame Chevalier?—A. Oh, yes, from Mr. Chevalier, not Madam.

Q. From Madam?—A. No, from the young man.

Q. Did you not buy anything from Madame Chevalier?—A. She gave the money back to me: she did not want to finish it with me.

Q. You bought from Joseph Chevalier?—A. Yes.

Q. What did you buy?—A. I bought all his good will and things he had there on the ground.

Q. What did he have on the ground?—A. He had some machinery to repair the boats and all these things.

Q. And you gave him $500 for this?—A. No, that is Mrs. Chevalier.

Q. No, that is Joseph. Did you go before the notary with Madame Chevalier?—A. Yes.

Q. Did you try to buy from Madame Chevalier in September, 1911?—A. Yes.

Q. This gridiron, or grize, they call it in French, for putting ships on?—A. From Mrs. Chevalier I bought only the house.

Q. It is called a slip?—A. I bought the slip from Mr. Chevalier, not Madame Chevalier.

Q. Did you go with Madame Chevalier before a notary?—A. Yes.

Q. What did you want to buy from her?—A. She had a part of the right to the slip and the machinery that was there: this son had a share and she had a share.

Q. And you went up to the notary with her and had the deed drawn?—A. Yes.

Q. And Joseph signed it?—A. The young one; I do not know if it was Joseph.

Q. And then you gave him the money?—A. Yes.

Q. How much money did you give him?—A. $500 or $550.

Q. That was on the 20th September: when did you give him the money?—A. As soon as we passed the deed at their house.

Q. Did you give him it at their house or before the notary?—A. Before the notary.

Q. That was on the 20th September, the deed says?—A. Yes, I think so.

Q. Did you go and get the money back?—A. Yes, I went and got the money back in a few days after.

Q. What for?—A. Because one of his sons did not want to sign it.

Q. His son did sign it?—A. One, but not the two.

Q. What did you say to Madame Chevalier?—A. I must have the signature of the two: I want to have it clear.

Q. Did you tell her she got the money by false pretences?—A. No.

Q. By false representations?—A. She told me it belonged to her only, and the son told me he had a right to this thing.

Q. What son?—A. The one that used to be proprietor of the slip.

Q. Is it Joseph?—A. No, Adolphe.

Q. What did you want to do with that machine?—A. Well, the same as the other, to sell it to the Transcontinental, to clear up this thing.

Q. You knew that was not on her ground, did you not?—A. Yes.

Q. Because you bought the ground from somebody else?—A. No, I did not.

Q. You bought a lease from somebody else?—A. Yes, from Mr. Lachance.

Q. What did you imagine the Transcontinental wanted that machine for?—A. For the same reason, because I thought they wanted to buy that, to clear the line that was going into the Champlain Market.

Q. You thought that?—A. Yes.

Q. Anyway, a couple of days after you went to this woman and got back the money that you gave for it?—A. Yes, three or four days after.

Q. On the 26th August you bought from Adolphe Chevalier for $4,000 all the rights spoken of in the deed?—A. Yes.

Q. Is that correct?—A. Yes.

Q. You saw his lease, did you not?—A. I cannot remember if I did see the lease. I think he produced them to the notary, Allaire.

Q. And you knew his time was up on the 30th May, 1912?—A. Yes.

Q. And you were allowing him to keep possession of the property till then?—A. Till the 1st of May.

Q. What did he have to sell to the Transcontinental?—A. That is the slip and the right that he had there.

Q. But his right was over on the 30th April, 1912?—A. Yes.
Q. You knew that?—A. Yes, and that was in September.
Q. And he was to keep possession?—A. Until the 1st of May.
Q. Then he would have to get out anyway?—A. Yes.
Q. So that he had nothing to sell to the Transcontinental, and you knew it?—A. If I knew it—
Q. You are an intelligent man, and you sit there and on your oath want us to believe that you did not know that the man had nothing to sell?—A. No, I bought something.
Q. What did you buy?—A. I bought the right.
Q. What right?—A. Until the 1st May.
Q. You were allowing him to stay there until the 1st of May?—A. Yes.
Q. So that the Transcontinental was not going to pull out till the 1st of May?—A. I do not know what the Transcontinental has to do with this thing. I allowed them to stay there until the 1st of May.
Q. It is like you coming to me and telling me, if I have rented a house, you will give me $500 for my right, and then let me stay there?—A. Put it in French.

(*Mr. Rivard puts question in French*).

Mr. RIVARD. He says what he does not understand is because he thinks that Chevalier had the right to renew the lease and stay after the 30th April.
Q. You think he had the right to stay there after the 1st May?—A. Well, renew his lease.
Q. You knew that was not true?—A. Why?
Q. Because the lease was produced to the notary?—A. Yes, I have just told you.
Q. The lease does not give him any right to renew it at all?—A. No, but he himself could go to Dobell and make a new lease, but I have no right.
Q. But Dobell could not give him a lease?—A. He could not give him a lease before the 1st of May.
Q. Do you want us to understand that you bought this and gave up $4,000 without knowing whether you could get the lease renewed or not?—A. No, I had nothing to do with the renewal of the lease myself.

(*Witness answers in French*).

Mr. RIVARD. He says he did not know himself whether the lease would be renewed or not; he bought it to sell to the Transcontinental.
Q. You have said to Mr. Rivard that you did not care whether the lease was renewed or not, and you did not bother yourself about it?—A. No.
Q. Mr. Chevalier says that you asked him to go and see Mr. Dobell, and ask Mr. Dobell whether he would renew the lease, and that he came back and told you that Mr. Dobell would not renew the lease?—A. I sent him to Dobell to have him sign the papers that I have made up with him. The answer was that Mr. Dobell did not want to sign it. (*Witness retires and telephones*). My bookkeeper says that everything was given to the Transcontinental, only the one that has remained on my hands just now—the two properties that remain on my hands—I have the papers.
Q. How much did you pay Adolphe Chevalier for whatever rights you got from him under the deed number 15315?—A. I think it must be $4,000.
Q. That is what the deed says: it is correct?—A. Yes.
Q. You bought from Chevalier, according to the deed, all his rights and interests?—A. Yes.
Q. All his rights and interests of every description of a certain land and anse—that is cove—known and designated on the plan and book of reference for Champlain Ward as number 2525, and all the damages resulting from and caused by the expropriation by the Transcontinental Railway, save and excepting the part of the said lot now occupied by Martineau for an ice house. Is that right?—That is what you bought?—A. Yes.

Q. It also recites in your deed that the said rights and interests to the occupation of the land belonging to Adolphe Chevalier is in virtue of a lease made to him by Alfred Curzon Dobell, advocate, as attorney for the Duchess of Bassano. "It is understood," you say also, "that the vendor will give possession of the land on the 1st of May next to you, Bergevin, and that he will pay, up to the 1st of May, the taxes and municipal and school rates, and other public contributions affecting the property and the rent to that date, and shall occupy the property until the 1st of May."?—A. Yes.

Q. That is all you bought, what I have said to you, is it not ?—A. Yes.

Q. What you sold to the Transcontinental Railway was your damages which would result to you from the demolition—that is the destruction—of the Bassin de Radoub—that is the slip?—A. Yes, everything that is required to repair the boats.

Q. You did not buy that at all?—A. No. He had to unfix this slip in the spring.

Q. But you did not buy the slip?—A. No.

Q. But why did the Transcontinental give you $4,250 for what you had no right to sell to them?—A. Well, I did not sell them any property.

Q. You sold them your damages for removing that Bassin de Radoub?—A. Yes.

Q. You did not own it?—A. But on the 1st of May I had nothing to do with it no more.

Q. And you had nothing to do with that machinery?—A. The slip?

Q. Yes?—A. No, I did not buy the slip.

Q. What did they give you $4,250 for?—A. For what I bought there.

Q. Your deed says that was for damages for removing the slip?—A. Yes.

Q. So that you got $4,250 for nothing?—A. Why?

Q. Because you did not own the slip?—A. No, but I bought the right from the 1st of September till the 1st of May, that is what I sold them: I could not have them anything that did not belong to me.

Q. But you did not sell them anything?—A. No.

Q. According to your own deed, you sold something which you did not own?—A. No, I did not sell them anything which did not belong to me.

Q. Did you own that Bassin de Radoub?—A. No. I owned only the right, as I explained.

Q. You did not own the Bassin de Radoub?—A. No, only the right to the 1st of May.

Q. You knew quite well you did not own that Bassin de Radoub?—A. Yes: I did not buy no property.

Q. Why did you sign a deed, and say in that deed that you owned it? (Deed shown to witness). Now, be honest about this thing. Did you not give that man that money, and then find yourself in trouble after the election, and come down here and get this money back on this deed?—A. No, sir.

Q. Yes, you did: you got it on the 16th October?—A. Yes, but that transaction was made before the election.

Q. The transaction with whom?—A. With the Transcontinental.

Q. With whom did you make it?—A. Mr. Parent.

Q. He is a lawyer?—A. Yes.

Q. And a very distinguished lawyer?—A. I had to pass that before the notary, Taschereau.

Q. And you made the bargain with Mr. Parent himself?—A. Yes.

Q. And he agreed to give you $4,250 of Transcontinental money for destroying the Bassin de Radoub?—A. Yes.

Q. And you knew you did not own it?—A. For the right I had there.

Q. For the Bassin de Radoub?—A. No, they say for the demolition of it.

Q. What was your bargain with Mr. Parent?—A. $4,250, the way the deed days there.

Q. For the demolition of the Bassin de Radoub?—A. No,

Q. Tell me the bargain: What did you say to Mr. Parent?—A. I told him "I will sell what I have there made with Chevalier, and that is all". I produced my contract with Chevalier, and that was the arrangement, I would get $4,250 for this thing.

Q. Did he read it?—A. Yes, and the notary too.

Q. Did Mr. Parent go to the notary with you?—A. No, Mr. Tremblay went, not before me, but I gave them the papers and they went to the notary with it.

Q. But Mr. Parent gave Tremblay the instructions?—A. Yes.

Q. In your presence?—A. Yes, to send the papers to Taschereau.

Q. Did Mr. Parent give Tremblay your deed from Chevalier?—A. Yes, he must have given it to him, because he had it in his hand.

Q. When did you make that bargain with you and Mr. Parent?—A. I cannot tell you, but it was a week or so before the election.

Q. And he put the transaction through after the election and gave you this money?—A. No, this was with the notary, just the next day after I made the transaction with him.

Q. With whom ?—Mr. Parent?—A. Yes.

Q. Did you sell anything else to the Commission?—A. Yes.

Q. To go back to the Martineau ice house; you bought the ice house from Martineau for $2,000?—A. Yes.

Q. You did not sell the ice house to the Commission; you only were paid by the Commission for compensation for removal of the ice house and damages. Cadastral 2525, Champlain Ward, City of Quebec, $3,700, according to your receipt; that is correct, is it not?—A. Yes.

Q. So that you could remove that ice house?—A. Yes.

Q. And the Commission was giving you $3,700 for the expense of moving it?—A. Yes, to take it away from there.

Q. Don't you think it was a pretty tall price for removing the ice house?—A. I do not know; you are the judge of that.

Q. I am asking you? —A. I sold for what I thought I could; if I could have sold it for more I would have.

Q. With whom did you make that bargain?—A. With the Transcontinental.

Q. With Parent personally?—A. Yes.

Q. He agreed you should take that ice house away?—A. Yes.

Q. And they would pay you $3,700 for taking it away?—A. Yes.

Q. No doubt about that?—A. No.

Q. Did you move that ice house?—A. No, because the Transcontinental rented it, I think.

Q. They did not pay you rent?—A. They kept it there.

Q. It is belonging to you?—A. No, it is not; I sold everything.

Q. Here is what you sold to them?—A. Yes.

Q. You have a right to go and move that ice house?—A. I do not know; I was not positively sure that I could or not, because I see the Transcontinental Railway since that have been renting it; they took possession I think.

Q. You forget about what was in the receipt?—A. Yes, I never saw it.

Q. You were satisfied to let the ice house go when you got the $3,700?—No, because I thought I had no right.

Q. But you did not sell the ice house?—A. No, but I thought I had no right on the house after that.

Q. Your deed says differently?—A. Yes, I see that, but if I had known this, that I could move this thing, because I had been asking Miller, but I thought they put on the contract the house and moving at the same tine.

Q. You forgot what was in the receipt?—A. Yes, I thought the Transcontinental had the house, and I was obliged to take it away from there.

Q. Did you forget?—A. I forgot it belonged to me still, because they put on the deeds, the house and the moving of it, because if I did know the house belonged to me I would not have let the Transcontinental to rent it.

Q. How could you sell the house and the moving of it?—A. Well, I am obliged myself to move them on the first of May.

Q. But if you sold it, you were not obliged to move it?—A. If I had sold the property?

Q. Yes?—A. No, but if they had asked me to move it—

Q. Was it not a pretended transaction altogether?-(question put in French).

MR. RIVARD: He says what he sold was the cost of removing the ice house, that the material and ice house still belonged to him.

Q. That is right, is it?—A. Yes.

Q. You were bound to clear the ground to take away the material, but the material belonged to you?—A. Yes,

Q. You owned the materials; that is the wood, the building?—A. That is all.

Q. Because you bought it from Martineau?—A. Yes.

Q. Then you could take it away, if you did not sell it to the Transcontinental? —A. Yes, in the spring.

Q. The Transcontinental gave you $3,700 for the cost, to make good to you the cost of moving that building?—A. Yes.

Q. Then you could go and take that $3,700 and use it to pay the expenses of moving the building?—A. Yes, clear the ground.

Q. Why did you not do it?—Did you not want to do it?—A. Because I did not remember what was on the lease, that they could oblige me to take it off, but I was not called for it; it was not necessary.

(Witness speaks in French).

MR. RIVARD: You say that you were under the impression at spring time on the 1st of May, if the Transcontinental aske dyou to move the ice house you had to move it, and if they did not ask you to move it, it remained there?—A. Yes, until they called for it.

By the Chairman:

Q. And, because they did not call for it, you left it there?—A. Yes, because I had nothing to pay for it.

Q. It was not worth enough to you to move it?—A. Oh, yes; the wood that is there is always good.

Q. Now, what was the Miller transaction?—A. It was an ice house too.

Q. You were going into the ice business pretty extensively?—A. No, I did not care for the business.

Q. You got into this ice business just about election time?—A. No, I bought a great deal before that.

Q. When did you buy the Miller ice house?—A. I bought it before that.

Q. How much did you pay Miller?—A. I think it is $2,250, I am not positively sure.

Q. You got then, from the Transcontinental, in the Chevalier matter, $4,250 for compensation for demolition of the graving dock, and $3,700 for compensation for the removal of the ice house?—A. Martineau, yes, I may have.

Q. So that 'you got $7,950 all told for the two?—A. Yes, you have it there.

Q. Did you get anything from the Transcontinental for the gridiron business, for the property you bought from Mrs. Chevalier.—A. No, sir.

Q. Did you sell any other property to the Transcontinental?—A. No, I bought some more, but I have them on my hands.

Q. What did you buy?—A. I bought Lachance and Berthiaume.

Q. Have you Lachance's there?—A. No.

Q. You do not know what you paid Lachance?—A. Perhaps I have it in my books: I think it is $900 and some odd: one was $875 and the other was $900.

Q. That is Lachance and Berthiaume?—A. Yes, that is the best of my memory, but that is about it.

Q. Why did you not get that money from the Transcontinental?—A. Because they did not want to buy it.

Q. Did you go and see Mr. Parent about it?—A. Yes.

Q. What did he tell you?—A. He said they did not need it then.

Q. Why not?—A. I think it was two or three days before the election: he says: "We will have those things finished, and if we want to buy them, we will buy them."

Q. Did you go and see him after the election about it?—A. Yes.

Q. What did he say about it?—A. He said he did not want to do any more transactions, because everything was turned up.

Q. You did do a transaction after the election: he gave you the money after the election?—A. Yes, but the transaction was made before.

Q. But the money was not paid?—A. I do not know if he had the money over there, but I got the cheque here.

Q. You did not get the cheque till after the election?—A. No.

Q. You got the cheque after the election?—A. For one only, I think: you must have the dates there.

Q. Those are both after the election?—A. I know I had one or two: I must have had some before the election, if you go to the deed there.

Q. Where did you get the $4,000 that you gave to Chevalier?—A. I got it from the bank.

Q. Can you produce the cheque from the bank?—A. Chevalier must have it —oh, well, it must be in the bank.

Q. What bank was it?—A. Union Bank.

Q. Can we go and look at your account in the Union Bank?—A. I can produce the cheque.

Q. Can you produce the bank book and show it to us?—A. No objection to that: you what only to check those things?

Q. That is all?—A. You can look over those things, I think I have the cheque in the house.

Q. Where did you get the $4,000?—A. From the bank.

Q. Did you have $4,000 lying there?—A. Yes, I had $10,000 margin there.

Q. For how long?—A. As long as I needed it.

Q. For how long?—A. I had $10,000 from the Union Bank as long as I wanted to buy the properties: as soon as I got back the money I gave them the money.

Q. Did you give security for it?—A. No. I think my name is good for it.

Q. You got the money from the Union Bank under arrangements you made with them to advance it for you?—A. Yes, when I was buying some property.

Q. Do you think the Union Bank would lend money on this kind of business? —A. Yes, and I think if I asked for $10,000 more they would give it to me.

Q. On this kind of stuff?—A. No, on my name.

Q. The only person that you know of that would give $4,000 for this kind of property is the Transcontinental Railway?—A. I have no answer to give you on that. You can judge yourself, or I will judge it.

Q. Did you take these papers in these two transactions to a notary yourself, or did you send them by Mr. Tremblay?—A. By Mr. Tremblay.

Q. And you made no bargain with any person excepting the Chairman, Mr. Parent?—A. Yes.

Q. He was the man you dealt with entirely?—A. Yes.

Q. Did you take any part in the election?—A. Yes.

Q. You were active in the election canvassing?—A. Yes.

Q. Were you working down on Champlain Street?—A. No, I have been working down in Montmorency, and the last week I think I did the work here.

Q. The last week you worked down on Champlain Street?—A. No, I was not working there : I was working down here.

Q. Who was present with you when you made this bargain with Chevalier? Was it Chevalier and O'Neill?—A. O'Neill was not with me.

Q. Who was with you down at the hotel?—A. I did not make the bargain there.

Q. You saw Chevalier at his house?—A. Yes, and at my store.

Q. And at O'Neill's hotel?—A. Yes.

Q. You talked the transaction over with him at O'Neill's hotel?—A. Perhaps I was there.

Q. You and Chevalier and O'Neill talked about buying what you bought from Chevalier in O'Neill's hotel?—A. Perhaps: I do not remember how many times.

Q. How much money did O'Neill get out of the transaction?—A. Not one cent.

Q. Not anything from you?—A. No, if he got anything, it was from Chevalier: he never got anything from me.

Q. You remember talking to Chevalier down in O'Neill's hotel?—A. Yes.

Q. What were you doing down there? Just looking up this transaction, or engineering?—A. I go there every day, because I have some money on interest there.

Q. You do not have to go there every day to get the interest?—A. No, but I go there as I go everywhere, because I am in the beer business, and I look all over the city.

Q. You are in the beer business?—A. Yes, I am in the brewery, and have to look over the hotels.

Q. And O'Neill is one of your customers?—A. Yes, like everyone in town.

Q. When did the Champlain Brewery come into existence?—A. We started in 1911; we had no beer then, and commenced February, 1912.

Q. You want to make another guess at what you were doing at O'Neill's tavern?—A. No, because I paid $1,000 to Mr. Boswell for his hotel when he started—I mean I paid $1,000 on account.

Q. You knew the Transcontinental was going to buy these properties, did you?—A. Well, I know that the road was passing by there.

Q. And you knew how much money they paid for it?—A. Yes.

Q. You said you made your bargain?—A. Well, I made a bargain after I bought the property.

Q. The same day?—A. No.

Q. How many days after?—A. Some four or five days after, or a week.

Q. You are a business man, are you not?—A. Yes.

Q. What is your business?—A. Dry goods business.

Q. And you are now president of a brewery company?—A. Yes.

Q. What else are you engaged in?—A. Only those two things: I have two stores, and I am doing some work myself.

Q. You have been in business a number of years?—A. Twenty-two years.

Q. And you are a man of property?—A. Yes.

Q. Will you tell me how a business man like you would think of buying what you bought from Chevalier, and paying him all the money, $4,000, without knowing whether you could sell it or not, to the Transcontinental?—A. Well, I did not say that I did not know: I was buying them to sell to the Transcontinental.

Q. You knew the Transcontinental would pay you that much money for it?—A. Yes.

Q. And you knew they had valued this property at $6,000?—A. No, I did not know that.

Q. What did you know?—A. I know that I could sell the property to the Transcontinental. The way to prove to you what you say is not correct, because some I sold at $250 profit. I was pretty sure I could sell it to the Transcontinental.

Q. I would like to know how you could expect the Transcontinental Railway Commission, if it was looking after its business properly, to buyt hat from you?—A. I can answer you on that. I say I did know pretty well that I could sell to it the Transcontinental. I would not go there if I did not know the road would pass there.

Q. You were not selling any right of way?—A. No.

Q. You were selling them a lot of old buildings they did not need, and you knew it?—A. No, I did not know it: at the same time when I bought these two houses I did not know. If I don't sell those houses I have now to the Transcontinental they are no good to me, unless I rent them that way.

Q. And they are no good to anybody?—A. Well t,hey are good houses. I get $16 upstairs and $9 downstairs for those houses. It is not a big amount. I bought them to sell to the Transcontinental, but I would not have bought them if I had not thought I could sell them to the Transcontinental.

Q. You still say, without ever having made sure you were going to be able to sell, you gave that $4,000?—A. What?

Q. You still say that, without being sure you could get the money back again, you paid Chevalier $4,000?—A. Because I was expecting to get more than $4,000 from the Transcontinental Railway.

Q. And you did get more than that by selling something you did not own?—A. Well, you have the deed there: I think it is $250 more.

Q. How long did you know the Chairman of the Commission, Mr. Parent?—Oh, I know him for ten or twelve years, I suppose, perhaps more, I cannot answer you that.

Q. Did you know any other members of the Commission?—A. Yes, I saw them sometime when I used to go to Ottawa: I did not know their names.

Q. You did not do any business with anybody else on the Commission?—A. No, not with the Commission: I saw them many times when they used to sit here and in Ottawa. I know them by their faces.

Q. Did you ever do any business for the Commission?—A. No.

Q. You never did any business for the Commission?—A. Well, I bought one house for the Commission.

Q. Which was that?—A. That was the Thibaudeau.

Q. And what did you pay for that?—A. Well, it was by auction I bought it.

Q. What did you get paid for that?—A. I think it was $9,000.

Q. What did you make out of it?—A. I bought it and gave the deed of the right of way.

Q. You acted for the Transcontinental in purchasing that, but got no money out of it?—A. No.

Q. Did you get any money from the Transcontinental on any other transaction?—A. Never.

(NATIONAL TRANSCONTINENTAL RAILWAY. INVESTIGATING COMMISSION, QUEBEC, MARCH, 13TH, 1913).

Before : George Lynch-Staunton, Esq., Chairman., F. P. Gutelius, Esq., Commissioner.

Napoleon Martineau, of the City of Quebec, manager for the Remington Typewriter Company, being duly sworn on the Holy Evangelists, doth depose and say:

Examined by Mr. Rivard :

Q. Did you have a lease with Mr. Dobell?—A. I had a lease the first year, at the beginning, with Mr. Dobell, who represented the Duchess of Bassano—a lease for three years. I have been for five years an ice merchant. My lease had expired.

Q. What was the date of that lease, about what year?—A. I could give it to you. Mr. Dobell also could give it to you.

Q. But approximately?—A. In any case it was just the year of the Tercentenary—I began in the autumn before—that was in eighteen hundred and eight—in the fall of nineteen hundred and seven.

Q. In the fall of nineteen hundred and seven, or in the month of August you had taken a lease from Mr. Dobell, representing the Duchess of Bassano?—A. Yes, sir.

Q. That lease for three years?—A. Yes sir.

Q. And after that it could be tacitly renewed?—A. Yes sir, naturally if he was willing.

Q. On condition that he would be willing?—A. Certainly.

Q. And you passed those three years there and you remained under the same lease afterwards?—A. Yes sir.

Q. By that lease what did you rent?—A. He rented to me the ground where my ice house was situated.

Q. There was no ice house there at that time?—A. No sir.

Q. It was you who built that ice house?—A. Yes sir.

Q. Was the lease made to you or to Mrs. Martineau?—A. No sir, to myself, to Napoleon Martineau, junior.

Q. To yourself?—A. Yes sir.

Q. You were a bachelor then?—A. Yes.

Q. You got married since?—A. Yes sir.

Q. After the three years were expired the lease continued without any other paper, by tacit renewal?—A. Yes sir, certainly.

Q. On the same terms?—A. I wished to renew my lease but Mr. Dobell told me he could not.

Q. But you continued under the same conditions?—A. Yes sir, except that he gave me a notice that in case the railway needed my lot, or if he made a sale, on three months notice, I was obliged to go away, to clear what was there and to go away.

Q. In other words, in virtue of the lease that you had from Mr. Dobell you continued to occupy the lot after the three years were expired, but on the condition, which was signified to you by a notice from Mr. Dobell that if the Transcontinental Railway needed the lot you were to abandon it and to clear the ground within three months?—A. Yes.

Q. At three months notice?—A. Yes, at three months notice.

Q. Now, this went on in this way up to the month of August nineteen hundred and eleven?—A. Yes sir.

Q. In the month of August nineteen hundred andel even you saw Mr. O'Neill who was one of your friends?—A. Yes.

Q. Who had often helped you?—A. Yes.

Q. And with whom you spoke of that matter?—A. Yes sir.

Q. You asked him if it was possible to sell your ice house?—A. Yes.

Q. At that time did you know that the Transcontinental Railway was going to pass there?—A. I did not know it.

Q. You did not know it at the time?—A. I did not think it would pass there.

Q. You did not know at that time that the Transcontinental Railway was going to take some land on the lot number 2525 in question?—A. No, I did not.

Q. Before going any further—the land in question—I draw your attention to the plan produced before the Commission and I think I shall describe the thing correctly in saying that what you had leased was part of the lot of ground described as cadastral number 2525?—A. Yes.

Q. Being that part of the plan which is marked as occupied by an ice house and also that part of the plan which is marked as being occupied by stable?—A. Yes, the part occupied by the ice house but not the part occupied by the stable because the ground occupied by the stable I occupied it in virtue of another lease which I had from Mr. Chevalier.

Q. The stable besides is not marked on plan?—A. No.

Q. To come back to what you were saying a few minutes ago, you went and saw Mr. O'Neill and you spoke to him about your affairs, did you not?—A. Yes.

Q. Your affairs at that time were not in a brilliant state?—A. No sir.

Q. You spoke to Mr. O'Neill about selling the ice house if there was any possibility of doing so?—A. Yes sir.

Q. And I understand that Mr. O'Neill referred you to Mr. Raoul Bergevin of Quebec?—A. Yes sir—to begin with the thing was not put into the hands of Mr. Bergevin immediately. The matter was discussed during two or three days before it was referred to Mr. Raoul Bergevin.

Q. Between whom was it discussed?—A. Between O'Neill and myself.

Q. After having discussed the matter for a few days with Mr. O'Neill, Mr. O'Neill introduced you to Mr. Bergevin?—A. Yes sir—I knew him beforehand.

Q. You knew Bergevin?—A. I knew him by sight. I went with him.

Q. He suggested to you to see Mr. Bergevin in order to arrive at a sale of that property?—A. Yes, Bergevin came at O'Neill's place to meet me.

Q. Did O'Neill tell you why you had to go to Bergevin for that matter?—A. Because he was a buyer for the Transcontinental.

Q. O'Neill told you so?—A. Yes sir.

Q. O'Neill told you that it was necessary to go to Bergevin because Bergevin was buyer for the Transcontinental?—A. Yes. There is another important point also.

Q. What is it?—A. In the first place about the price. I asked four thousand dollars. O'Neill asked me how much I would ask. I told him: four thousand dollars. He said: you ask a good deal too much, it may be worth fifteen hundred dollars. I said: No, it is worth four thousand dollars on account of my trade. It is not only for the property but it is worth that amount to expropriate me. Upon that he said: I should see Mr. Bergevin about that and we shall discuss the matter together and after that I shall give you an answer. The next morning I saw O'Neill again, he told me that they had come to an understanding the day before about the ice house. He said: we are willing to give fifteen hundred dollars for your ice house. You are valued at eighteen hundred dollars. I said: did you see the valuation—He said: no. We shall go and see it together. That day passed and on the next day I asked him: Is it not possible to go and see that? He said: no, they won't show the books to any one but Mr. Bergevin who is employed for the Transcontinental, who is buyer for the Transcontinental.

Q. I suppose it was then you saw Mr. Bergevin?—A. No, it was on the the second day.

Q. Did anything important occur after what you have just stated and before you saw Mr. Bergevin?—A. O'Neill told me; Martineau, you will have to shut your mouth and to stay quiet, and to mind your own business—speaking about the election.

Q. What is that O'Neill?—A. O'Neill is a bar keeper.

Q. Here in Quebec?—A. Yes, on Finlay Market.

Q. Is it a friend of Bergevin?—A. He is a friend of Bergevin's and has received favors from him.

Q. Then where did you meet Bergevin in connection with that matter for the first time, was it at O'Neill's or at Bergevin's, or at your own house?—A. It was at O'Neill's in a room.

Q. In a private room?—A. Yes.

Q. In O'Neill's hotel?—A. Yes, sir.

Q. O'Neill, Bergevin and yourself were there?—A. No, I was alone with Bergevin.

Q. Did Mr. Bergevin know that you had a lease from Mr. Dobell?—A. It is the first thing that he inquired about and I told him just as it was.

Q. The first thing that Bergevin told you was to ask you if you had a lease for the lot in question?—A. Yes.

Q. And then—if I am not stating the facts correctly, you will tell me so, because we are here to get at the truth—did you tell him how the matter stood just as you have stated here a moment ago?—A. I told him just what I said here a moment ago.

Q. Did you have your lease with you?—A. No, sir.

Q. But you told him?—A. But I had my marriage contract any way.

Q. The lease that you had passed with Mr. Dobell is the one which I now exhibit to you and which is signed by you?—A. Yes, sir.

Q. And also by Mr. Dobell, before a witness, Mr. Stavely?—A. Yes, sir.

Q. And the original of which is now produced as exhibit number three?—A. Yes, sir.

Q. You did not have your lease with you when you saw Mr. Bergevin?—A. No sir.

Q. Did he see that lease?—A. Yes, he saw it.

Q. How do you know that he saw it?—A. I had a copy of it—I have it still at home.

Q. You had a copy of the lease?—A. Yes, the notary who made the sale saw it.

Q. You had a copy of the lease and you showed it to the notary?—A. Yes, sir.

Q. Was it the first interview you had with him?—A. Not the lease at the first interview, but when we were a little more———

Q. When you had gone a little farther with the transaction?—A. Yes, sir.

Q. Did Bergevin at that time, during the first interview make any offer to you?—A. No, sir.

Q. What did he say?—A. He showed himself pretty independant as if he was not much interested in buying the ice house but rather as it he were trying to further my own interests. He said : Martineau, you are in a bad fix—he touched me to the quick there. I did not let him see that I felt insulted. he said; Now, listen—when you were speaking about your affairs you told O'Neill that you would like to sell your ice house? I said: yes, so long as I am paid what it is worth. He said it goes without saying that if you have no lease it is not worth anything. The building had cost twelve hundred dollars. He said: it is not worth anything, it costs about one thousand dollars, perhaps only nine hundred dollars, that building. Upon that I said yes I don't say the contrary. I told him that it had cost about that, I had built it myself.

Q. What did he say then?—A. I said: yes, but the question is not about the building, Mr. Bergevin, the question is about my trade which I shall have to abandon if I sell this, because I am not able to have a property in that part of the city where I am now, because the Transcontinental Railway is expropriating all those lots. They are going to build wharves and I won't be able to fill up my ice house.

Q. Then Bergevin on that occasion spoke about the expropriation that were to be made by the Transcontinental?—A. It was I who asked him. I said: Mr. Bergevin, what is your reason for saying that it is worth only fifteen hundred to eighteen hundred dollars as you offer me?—

Q. What did he answer?—A. I have not finished my answer. I said: Mr. Bergevin, I know that a land surveyor has passed, thay have measured the land,

ets., and they have made a valuation of the land. I know there is a valuation in the books of the Transcontinental and I would very much like to see what that valuation is. He said: you cannot see that valuation, I am the only one who can see it. You are valued at two thousand dollars, or two thousand two hundred dollars. He told me that after we had been speaking together for about an hour. Then I said: if I am valued only two thousand two hundred dollars——of course I was in a bad fix, I was in a bad position, the things were advertised and it had to be sold. I said: I will sell to you for two thousand dollars, and two hundred dollars will pay your interest. I said this because he wanted to give me only fifteen hundred dollars and then he raised his offer to eighteen hundred dollars.

Q. To make a long story short, I understand that in that first interview you had with Mr. Bergevin, there was a question of selling the ice house to him and you discussed together about the value and his pretention was that it was worth eight or nine hundred dollars?—A. Yes.

Q. He pretended that it was not worth much and he began by offering you fifteen hundred dollars and after a great deal of discussion with him you brought him to admit there was, according to him, in the books of the Transcontinental, a valuation of two thousand two hundred dollars and it was then that you consented to sell the property to him for two thousand dollars?—A. Yes.

Q. He making a profit of two hundred dollars?—A. Yes, and after that there is something else. O'Neil told me that he had gone with Bergevin at the Transcontinental Railway's office in order to see my valuation and that it was two thousand two hundred dollars.

Q. Is it on that occasion that you showed him a copy of your lease?—A. No, sir, it was when we went at the notary's to make the sale, to sign the deed of sale.

Q. In the interval between your first interview and the day on which the deed of sale was signed did you see Bergevin again about the same matter?—A. Not until we went to sign the deed of sale.

Q. You went to the notary's to have the deed of sale drawn up how many days after this?—A. The next day we went to sign the deed of sale. I did not lose much time. The next day after this we went at the notary's.

Q. Which Notary?—A. Notary Couture.

Q. In order to sign the deed of sale in favor of Bergevin?—A. Yes.

Q. And there you had the copy of your lease, the original of which is produced as exhibit number three?—A. Yes sir.

Q. And you showed your lease to Bergevin?—A. Yes sir.

Q. Did you read it in his presence?—A. Yes sir.

Q. Did he hand it over to the notary that he might read it?—A. I think so ; yes sir.

Q. It is not "I think so"—but do you remember?—A. Yes, I remember now.

Q. That it was read to the notary?—A. Yes.

Q. Is there any other person, any lawyer or notary, who was aware of the transaction?—A. At that time, not at all.

Q. What became of the copy of the lease, did you bring it back or did Bergevin keep it?—A. I am almost sure I have it at home. If I have it I shall produce it.

Q. At that time, do you know if Bergevin kept it for sometime?—A. No.

Q. Well you sold to Mr. Bergevin the buildings or the constructions which in the ground in question and which you used as an ice-house, and also a stable? —A. Yes sir, but the stable was built upon another piece of ground forming part of the same lot.

Q. The stable does not appear on the plan?—A. No.

Q. And that other piece of ground, you held it in virtue of a lease from Mr. Chevalier?—A. Yes, but the stable was not on the lease.

Q. Anyhow you sold it?—A. Yes, I sold all the buildings that were there.

Q. Now, in the deed which you passed with Mr. Raoul Bergevin and which is produced here as exhibit number two, it appears that it is Madame Laura Tousignant, your wife, who sold the ice-house?—A. Yes sir, because she was the proprietor.

Q. How did it belong to your wife?—A. Because when I got married I gave her everything. I am kind-hearted, you know.

Q. When you had the deed of sale drawn up, Mr. Bergevin and yourself were there and you had your marriage contract with you?—A. Yes.

Q. You had brought your marriage contract in order to show Bergevin and the notary that the ice-house belonged to your wife?—A. Yes sir.

Q. And you showed it to the notary and Bergevin?—A. Certainly.

Q. By the same deed exhibit number two it appears that you personally transferred to Bergevin all your rights as lessee of that part of the lot occupied by the ice-house that is which you occupied in virtue of your lease exhibit number three and also the right to the occupation to the piece of ground leased to you by Chevalier as you have said before?—A. Yes sir, certainly.

Q. At that moment is it not true that Bergevin knew that in virtue of the agreement you had with Mr. Dobell your right to occupy that piece of ground ended on the thirtieth of April nineteen hundred and twelve?—A. Yes sir, and what proves this is that he used this as an argument to offer me only fifteen hundred dollars.

Q. Will you take communication of the exhibit now produced as number four and say whether this is a document to which you have referred when you said there was a lease between Chevalier and yourself?—A. Yes, sir.

Q. And this document is signed by you and also by Mr. Adolphe Chevalier? —A. Yes, sir.

Q. And it was signed in the presence of Mr. Alfred Dobell acting as witness? —A. Exactly.

Q. You have told us a moment ago—and as the matter is of importance I wish it to be stated clearly so that there be no error—that when this deed of sale was passed between Bergevin and yourself, Bergevin knew that your right to occupy that piece of ground expired on the thirtieth of April nineteen hundred and twelve? —A. Yes, sir.

Q. And this applies to the land occupied by your ice-house in virtue of the lease which you had from Mr. Dobell, as well as to the land upon which the stable was built and which is referred to in exhibit number four?—A. Yes, sir.

Q. All this ended on the thirtieth of April, nineteen hundred and twelve ? —A. Yes.

Q. And Bergevin knew it?—A. Yes.

Q. Consequently, when he gave two thousand dollars for what you sold him he gave those two thousand dollars only for the ice-house and the stable?—A. Yes, only the buildings.

Q. This included only the building?—he knew there was no lease?—A. He knew that I had asked Mr. Dobell to renew the lease—I had offered him to double the amount of rent in order to renew the lease for one year more.—I even offered him two hundred dollars, for one year's renewal, because Mr. Bergevin had asked me: go and try to renew the lease. Mr. Dobell would not do so. He said: "I cannot do it."

Q. And you notified Bergevin that he would not renew the lease?—A. Yes, I told him: Mr. Bergevin, it cannot be done.

Q. He knew then that there was no lease?—A. Exactly.

Q. You were to deliver the position with him only from the first of May, nineteen hundred and twelve?—A. Yes.

Q. And on the first day of May nineteen hundred and twelve you had no more lease?—A. No.

Q. Who got those two thousand dollars?—A. I did. He gave me five hundred dollars cash by a check on the Union Bank—not in cash, but by a check on the Union Bank, on the same day that I settled at the notary's.

Q. That is to say on the nineteenth of August nineteen hundred and eleven?—A. Yes.

Q. When did he give you the balance?—A. On Monday.

Q. On the following Monday?—A. Yes, two or three days after. I think this was a Friday or a Saturday—I believe I sold on a Saturday—I am not sure whether it was Friday or Saturday.

Q. Did he give the money directly to your wife or to you for your wife?—A. He gave it to me, naturally for my wife.

Q. You had settled with Mr. Dobell for the rent up to the thirtieth of April nineteen hundred and twelve?—A. Yes sir.

Q. Did you tell him at that time that you were going to sell to Bergevin, when you settled with Mr. Dobell?—A. I don't think I told him. I did not tell it to Mr. Dobell. If I told him, I don't remember.

Q. Now, when this transaction was going on did Mr. Bergevin give you any warning or any advice concerning the election?—A. Yes, as I have just told you, he said: You know, Napoleon, you are in a bad fix.

Q. Bergevin told you this?—A. He said: you know you are in a bad fix. I said: yes. He said: you know we are pulling you up from a hole, you must show yourself grateful for this. I don't ask you to work on our side, but mind your own business, keep quiet and don't make a noise. I said: look here Mr. Bergevin if you will give me four thousand dollars I am going to shut my mouth, I won't say anything, but if you don't give me four thousand dollars I will go on as usual, do as I have always done and I will show myself as I am. The same evening I went to see O'Neill and I said to O'Neill: if you give me three thousand five hundred dollars I shall mind my own business, but if I sell for two thousand dollars I will act just as before and do all I can for my party. O'Neill said to me:"listen, Napoleon, don't make a fool of yourself now, I believe I shall have good news for you tomorrow." I said: "all right." On the next day I went there he said: "it looks bad," I went again in the afternoon and he told me: it is not possible to give you more than two thousand dollars. I said: "well I am very glad. I would not accept three thousand five hundred dollars because I want to keep my liberty. If you don't give me three thousand five hundred dollars I shall keep it."

Q. That is to say: Bergevin, and O'Neill probably acting on Bergevin's instruction, asked you to keep quiet about the elections, and you, in order to do so, you asked for more, and you said: give me four thousand dollars and I shall keep quiet, otherwise I shall keep my liberty, and then he told you: we are going to try. At last he told you that it was not possible to give you more than two thousand dollars and you answered: well, that is all right, because I had rather be free? A. Yes sir.

Q. This is in substance what was said?—A. Yes, and with respect to that I could give you a good plea for Chevalier.

Q. No matter, this is useless. If I have understood you right—and if not you will tell me so—I gather from what you have just said, and which has not been taken down in shorthand—I understand that in the course of last summer you met Mr. Bergevin?—A. Yes sir.

Q. And that Bergevin spoke to you about Chevalier?—A. Yes sir.

Q. Complaining that he had given Chevalier four thousand dollars and that Chevalier was not acting about politics as he Bergevin would have wished, and he complained to Chevalier in that respect—A. Yes.

Q. Giving you to understand by this that he had given Chevalier four thousand dollars in order to obtain the political support or the political opinion of Chevalier and that Chevalier did not now give him such political support as he expected from him?—A. Yes sir, he told me so in the cars.

Q. Do you know anything else which you would consider useful to put before the Commission—I don't speak of details but facts absolutely relevant to the matter in question?—A. It is probably all, we have covered every point.

Q. You think you have a copy of the deed of the lease at home?—A. Certainly.

Q. If you have it and if you find it, can you send it to us this afternoon?—A. Yes sir.

Q. Now, what did Bergevin do with the ice house you sold him?—A. It is there still.

Q. He did not take it away?—A. I will tell you something else. It may interest you. After the elections of the twenty first of September, O'Neill was sick in bed. O'Neill is one of my friends and I went to see him and tendered my sympathies. He told me: Napoleon, it looks bad, Bergevin has some difficulty in selling his ice house. I said: how is that? did he not get the Transcontinental to buy it? He said: no, Parent won't buy any more, Parent won't pay him. He had been to Ottawa.

Q. O'Neill told you that Bergevin complained that he had difficulty in getting money for that ice house because Parent would not pay him?—A. Parent would not pay him because the Government had changed and he did not wish the thing to appear.

Q. In any case the ice house is there still?—A. Yes.

Q. It has not been removed?—A. I saw it last summer.

Q. And the stable?—A. The stable is still there also.

Q. The stable is still there also?—A. Yes sir.

And further deponent sayeth not.

Adolphe Chevalier, of the City of Quebec, dock-yard owner, being duly sworn upon the Holy Evangelists, doth depose and say:

Examined by Mr. Rivard:

Q. You have been engaged since several years in repairing boats, have you not?—A. Building and repairing.

Q. Building and repairing boats?—A. Yes.

Q. In the usual course of your business I understand that on or about the first of October nineteen hundred and eight you rented a piece of ground from Mr. Dobell, representing the Duchess of Bassano, said piece of ground being part of lot number 2525 of the cadastre for the Champlain Ward in the City of Quebec?—A. Yes, sir.

Q. The land which you rented by this lease and which I now show you on the plan before the Commissioners, is the land marked number 2525 and comprises all the land mentioned under that number with the exception of that part which lies on the east side of said lot and which is occupied by an ice-house and which had previously been leased to Mr. Martineau?—A. Yes, sir.

Q. What is marked on the plan as ice-house?—A. Yes, sir.

Q. Now, as there are two ice-houses on the plan is it not true that the ice-house in question which was excluded from your lease was that which is situated on the west side of the lot?—A. Yes.

Q. Next to the street?—A. Next to the street.

Q. So that the land which you rented from Mr. Dobell encloses on all sides the piece of ground leased to Martineau except on the street front?—A. Yes, sir.

Q. And you also rented the beach lot up to deep water?—A. Yes, sir.

Q. All that you required for your business?—A. Yes, sir.

Q. The lease which you passed is exhibit number five which I now show to you?—A. Yes, sir.

Q. This lease was made for three years from the first of May nineteen hundred and nine?—A. Yes, sir.

Q. Ending on the thirtieth of April nineteen hundred and twelve?—A. Yes, sir.

Q. It was mentioned in the lease and agreed between you and Mr. Dobell, acting as aforesaid, that Mr. Dobell had the right at any time to end the lease by giving you six months notice, and upon such notice you had to abandon the lot and to clear it?—A. I had to deliver the lot in question.

Q. After the six months had expired?—A. Yes, sir.

Q. What did you do on that lot?—A. I built and repaired boats.

Q. You built and repaired boats?—A. Yes.

Q. You have put upon that ground some kind of blocks, what is called in English a skidway?—A. Yes.

Q. This is the skidway which is quite visible on the photograph produced as exhibit number six?—A. Yes, sir.

Q. The skidway in question is just what is visible on that photograph from the stern of the schooner down to the water edge on the left side of the photograph?—A. Yes, sir.

Q. And the schooner itself is lying on the skidway?—A. Yes, sir.

Q. You have also built on the same piece of ground what is seen on the left side of the skidway, what is called a gridiron?—A. Yes, sir, a gridiron.

Q. In the month of August nineteen hundred and eleven you were still in possession of that piece of ground as lessee as you have just said?—A. Yes, sir.

Q. Meanwhile you had leased to Mr. Napoleon Martineau, junior, a certain part of the land in question, which is described in the lease sous seing privé produced as exhibit number four?—A. Yes.

Q. It is the same piece of ground of which Mr. Martineau spoke in his evidence you have just heard?—A. Yes, sir.

Q. This is the piece of land on which the stable has been built?—A. I beg your pardon. The stable, I gave it free to Mr. Martineau. The ice-house was on the other side. I gave this through kindness.

Q. The piece of ground which you leased to Mr. Martineau by exhibit number four is it this piece of ground?—A. One-half of the piece of ground. It is divided in two. One part is leased by Mr. Dobell and the other part by myself but the stable was not included in the lease, I gave that as kindness.

Q. In the month of August nineteen hundred and eleven did you see Mr. Bergevin?—A. Yes, sir.

Q. Mr. Raoul Bergevin?—A. Yes, sir.

Q. To give him his exact name, Mr. Raoul Rene Bergevin?—A. Yes.

Q. Of the City of Quebec, merchant tailor and dry goods merchant?—A. Yes, sir.

Q. Is it Mr. Bergevin who asked you to sell him something concerning this piece of ground or was it you who offered to sell him?—A. I beg your pardon, if you will just let me tell—

Q. Answer my question first?—A. No, it was not he.

Q. Well, then will you explain how the negotiations began between Bergevin and yourself?—A. In the month of July nineteen hundred and eleven I went to Ottawa in order to see Mr. Parent as I had seen surveyors going over the ground and I thought the land was to be bought that year.

Q. In other words, in the month of July, nineteen hundred and eleven, you knew there was going to be expropriation ?—A. Yes.

Q. And for that reason you left Quebec and went to Ottawa to see Mr. Parent?—A. I went to see Honorable Mr. Parent, yes sir.

Q. Who was then Chairman of the Commission?—A. Yes, sir.

Q. To see how you could settle your business?—A. Yes, sir.

Q. While you were in Ottawa, did you get a telegram from Mr. Morency?—A. Yes.

Q. Who was Mr. Morency?—A. Mr. Morency was agent for the Department here.

Q. He told you to wait?—A. He told me to call him up by telephone.

Q. Did you speak to him by telephone?—A. Yes, I spoke to him by telephone.

Q. And he wrote to you?—A. Yes.

Q. And you saw him?—A. Yes.

Q. And he read a note to you to what effect?—A. To the effect that my valuation, according to Mr. Scott, was six thousand dollars. I received that letter.

Q. Then I understand you went to Mr. Bergevin in order to sell?—A. No, before that, I had learnt that Martineau had sold his ice house. Then I went and saw O'Neill.

Q. From whom did you learn that Martineau had sold his ice house?—A. I was told by some people.

Q. Were you told that it was Bergevin who bought it?—A. Yes, sir.

Q. And knowing this you went and saw Bergevin?—A. I went and saw O'Neill. I went into his bar as anybody could go and I said to him: "Jimmy, I am told that Martineau has sold?" He said: "Yes." He said: "Do you wish to sell?" I said: "If the offer is reasonable I will sell." He said:"How much do you want for your slip and your damages." I said: "Six thousand dollars." He said: "You ask too much, you will never get that. If you wish to sell we will fix that. But then you shall give me something out of that and you must not say a word in election time." I said: "That is all right." Then he said:"We will go up to Bergevin's to-morrow." On the next day Bergevin and O'Neill came to my house and they went and visited the ground.

Q. I want to understand this right. After your trip to Ottawa you understood from what you heard from Mr. Morency by telephone or by letter that you could sell with a good profit?—A. Yes.

Q. At the same time you learned that Martineau had sold?—A. Yes, sir.

Q. Then you went and saw O'Neill?—A. Yes, sir.

Q. Because you knew or you supposed at the time that it was through O'Neill that Martineau had sold or that it was necessary to see O'Neill in order to reach Bergevin?—A. Yes, because I knew that politics were mixed up with that matter.

Q. Then O'Neill asked you if you wished to sell?—A. Yes, sir.

Q. And you told him that you would sell for six thousand dollars, relying upon what Mr. Morency had told you?—A. Yes, sir, on what he had written to me.

Q. O'Neill found the price too high?—A. Yes, sir.

Q. He told you that there was a way to settle the matter, but on condition that you should stay quiet during the elections, what was the meaning of that?—A. Not to work against them, because I am a friend of Mr. Price.

Q. Not to work against them?—A. Yes.

Q. Then it was O'Neill who made arrangements to visit the ground and what was on it a few days later?—A. It was he who saw Bergevin.

Q. Bergevin and O'Neill went there with you?—A. No, they came and saw me at my house.

Q. They came to your house and went with you to see the land?—A. Yes, sir.

Q. They examined it?—A. The tide was high and they could not see what we call the gridiron. They only saw the skidway.

Q. Is it at that moment that Bergevin made an offer to you?—A. No, sir, he said he would think about it and would settle that later on, saying that we would see each other again.

Q. In what capacity did Bergevin talk about buying? Was it individually or as buyer for the Transcontinental?—A. When it was decided to buy my property I went and saw O'Neill. They made me come to O'Neill's place and Bergevin told me: "Listen, Chevalier, I am working for the Transcontinental. I have just seen the books and your valuation is four thousand dollars, we will give you four thousand dollars. You had better take it because you won't get more and later on you may not

get anything. If you will take four thousand dollars, we will buy your property." I said: "If I am valued at four thousand dollars, but if my valuation is higher I would like to get it."

Q. Then Bergevin gave you to understand that he was working for the Transcontinental?—A. Yes, he told me so directly.

Q. He gave you to understand that he was buying or that he wished to buy your rights, whatever they might be, for the exact sum which the Transcontinental was willing to pay you?—A. Yes, sir.

Q. Did you know at the time or did he give you to understand or to suspect that he was acting as an intermediary so as to make money out of it for himself?—A. No, I thought at the time, and I have always thought, that he was employed by the Department, because he told me so.

Q. He told you that he was employed by the Department?—A. He told me that he was employed by the Department and that he was the only man who could see the valuations in the books.

Q. And he told you that you would receive exactly the amount which the Government was going to pay?—A. Yes, sir.

Q. And not less?—A. Not less. Then O'Neill told me: "I will cause you to sell and you shall give me one hundred dollars."

Q. O'Neill was to get one hundred dollars?—A. Yes, and he gave them to him too.

Q. Did Bergevin speak to you about the election?—A. Yes, sir.

Q. Bergevin also?—A. Yes.

Q. What did he say?—A. That was in the room—he made me enter into a room at Mr. O'Neill's.

Q. In the hotel?—A. In the hotel.

Q. A private room?—A. Yes, and after that he said: "Listen, Chevalier, now that we are buying you up, that we are paying you, that we are doing you a good turn you must not work against us, you must help us in the election." I said: "That is all right."

Q. Do I understand that in this circumstance Bergevin gave you to understand that in giving you four thousand dollars he was acting for the Transcontinental?—A. Yes, sir.

Q. Bu the told you that in giving you four thousand dollars he was doing a good turn to you so that you would not be against them in the elections?—A. Yes, that is correct, that is so.

Q. Was it long after that that you passed the deed of sale?—A. No, I saw Mr. Dobell and two days later they came to my house.

Q. Is it the circumstance to which you have already referred?—A. On the next day he passed the deed. He asked me to get a copy of my lease and I went and saw Mr. Dobell.

Q. The lease which you have passed with Mr. Dobell as you have stated before is exhibit number four?—A. No, sir.

Q. I mean exhibit number five?—A. Yes, sir.

Q. Did Mr. Bergevin know that lease?—A. Not at the time.

Q. When did he know it?—A. When I showed it to him.

Q. When did you show it to him?—A. When I went at the notary's. He sent me to Mr. Dobell's to try and get a copy of the lease and he said; you shall bring to me at the notary's.

Q. Who said that to you?—A. Mr. Bergevin. I went and saw Mr. Dobell.

Q. Before that, did Bergevin know that you occupied that piece of ground in virtue of the lease from Mr. Dobell?—A. I don't know.

Q. You don't know?—A. I don't know.

Q. Did he ask you what you were able to transfer to him?—A. Certainly he asked me and I told him.

Q. That you had only a lease from Mr. Dobell and that this lease expired on the thirtieth of April?—A. Yes.

Q. When did he tell you that?—A. While the sale was being discussed and before we went at the notary's.

Q. You told him that you held a lease from Mr. Dobell and the lease expired on the thirtieth of April?—A. Yes.

Q. On the thirtieth of April nineteen hundred and twelve, you knew that the lease expired?—A. Yes, sir.

Q. By the terms of the lease it was to expire on the thirtieth of April, nineteen hundred and twelve?—A. Yes, it expires then.

Q. Had you received a notice that it would not be renewed?—A. Mr. Dobell had told me so several times; Chevalier, I cannot renew it.

Q. You had on several occasions asked Mr. Dobell to renew the lease that it might continue after the first of May, nineteen hundred and twelve, and Mr. Dobell had refused?—A. Yes, sir, he had refused.

Q. Did you tell this to Bergevin?—A. No, he did not speak about that.

Q. He did not speak to you about that?—A. No.

Q. After that you went at the notary's?—A. Yes.

Q. And there Bergevin saw the lease exhibit number five?—A. Yes, sir.

Q. You showed it to him?—A. Yes.

Q. You had taken a copy?—A. Yes, it is Mr. Dobell who procured it for me.

Q. Did Mr. Bergevin then ask you if it was possible to renew the lease?—A. No, he did not speak about it.

Q. Or to extend it for some time?—A. No, he did not speak about it.

Q. He knew at the time that the lease had expired or would expire on the first of May, nineteen hundred and twelve ?—A. Yes, sir.

Q. Or rather on the thirtieth of April?—A. On the thirtieth of April, nineteen hundred and twelve, yes.

Q. Not on the first of May, but on the thirtieth of April, nineteen hundred and twelve?—A. Yes, sir.

Q. Then it is under those circumstances that you passed the deed which is produced as exhibit number one?—A. Yes, sir, he bought my lease, nothing more nor less.

Q. By this document you sold him your rights to occupy the piece of ground of which you have spoken?—A. Yes.

Q. And which was leased to you?—A. Yes, sir.

Q. That is to say, number 2525 except what had been leased or underleased to Martineau?—A. Yes.

Q. And moreover, this occupation or right to occupy, whatever it may be, were sold to be delivered on the first of May nineteen hundred and twelve?—A. Yes, sir.

Q. He knew at the time that on the first of May, nineteen hundred and twelve, you had no more lease?—A. He knew it certainly, he read it.

Q. Bergevin knew from what you have shown him and what you had told him, that when you would be called upon to put him into possession of the piece of ground in question on the first day of May, nineteen hundred and twelve, you you would no more be in possession of the same?—A. Certainly, he had my lease.

Q. Consequently he was buying something which did not exist?—A. He was buying nothing. So far as I was concerned it suited me very well.

Q. Now the skidway that we have already referred to, is it the same thing as what has been called the slip in the different documents and deeds which you have passed?—A. Yes, sir, that is the way we called it.

Q. You used that expression and you knew that in English this thing is called the skidway?—A. It is called a skidway, yes sir.

Q. Then what is called a slip here is the skidway in question?—A. Yes, sir.

Q. That skidway with the gridiron that was there, where are they now?—A. They are at St. Laurent.

Q. They are at St. Laurent on the St. Laurent dock-yard?—A. Yes, sir.

Q. They were removed from lot number 2525, and were put on the ground belonging to the St. Laurent dock-yard, at St. Laurent, on the Island of Orleans?—A. Yes, sir.

Q. And they are now the property of that company?—A. Yes sir.

Q. To whom they were transferred by a transaction which does not concern the present matter at all?—A. Just so.

Q. When were they removed from lot number 2525 and brought to St. Laurent?—A. I believe it was in the month of August, nineteen hundred and twelve.

Q. By whom were they removed?—A. By myself.

Q. By yourself?—A. Yes.

Q. Who paid for removing them?—A. The St. Laurent Company, Limited I beg your pardon—it is I who paid for removing them and the company paid to build them up again upon their ground.

Q. Bergevin never worked at the removal of that thing?—A. No, he is much too lazy for that.

Q. Had he anything to do with the matter at all?—A. Not at all, I never saw him again after that.

Q. When you had to remove the skidway and the gridiron and all that was there did you consult with Bergevin?—A. I have no business to do so.

Q. Did you notify Bergevin?—A. No, because the deed of sale gave me the right to take away my property and Bergevin had nothing to do with this, he did not buy those things.

Q. The skidway, the gridiron and all what constituted your dock-yard, I understand that this was not sold to Bergevin by that deed?—A. No.

Q. Is it to your knowledge whether Bergevin did anything else in connection with that skidway—did he have anything to do with Mrs. Chevalier, for instance. A. Not for that one, but for another one.

Q. Was the skidway in question ever sold to Bergevin by anybody in virtue of some other deed?—A. Not at all, not the skidway, it was the gridiron.

Q. But the gridiron that was on the ground in question has also been removed from St. Laurent?—A. No, I beg your pardon, it is in Levis.

Q. Then this gridiron belongs to you?—A. Not at all, the wood belonged to my father and when my father died he left it to my mother and I rented the ground and I fixed the wood on the property, but I was earning my mother's living. I was the owner and the business went on under my name.

Q. If I understand you right, this gridiron was made up of pieces of wood which formerly belonged to your father?—A. Yes.

Q. Mr. Chevalier the father?—A. Yes.

Q. Your father is dead?—A. Yes, sir.

Q. And you are his heir?—A. No, he left it to my mother.

Q. You took those pieces of wood and you fixed them on the property and built them up into a gridiron?—A. Yes, such as they were before.

Q. You built that gridiron yourself?—A. Yes sir.

Q. You built it on the land in question?—A. It was built before that, it is a thing which is taken asunder every fall. My father had begun it before me and had left it to my mother.

Q. Was it your father who completed it or was it you?—A. It is a thing which is taken away every fall and is replaced in the spring.

Q. Those pieces of wood were destined by your father for the gridiron?—A. Yes, sir.

Q. The gridiron was built by your father?—A. It was built by my father but I renewed it frequently.

Q. Did you renew the pieces of wood?—A. Certainly.

Q. Then it was almost new?—A. No, because they are soon worn out. The ships' keels cut into it.

Q. You have to replace the pieces of wood, then who furnished the wood?—A. I did. When my father died he left me with eight hundred dollars debts to

pay and I had four hundred dollars to pay to Mr. Dobell and there was not one cent in the house. I borrowed two hundred dollars to pay Mr. Dobell.

Q. And you went on that way?—A. Yes, and very hard up all the time.

Q. It was you who used the gridiron and you continued using it?—A. Yes.

Q. You were supporting your mother?—A. Yes, I gave my mother the revenue I got from the slip.

Q. You say that you gave the revenue that you got from the slip to your mother, what do you mean by the slip?—A. I mean the gridiron.

Q. The gridiron?—A. Yes sir.

Q. It has been said that what you call the slip was the skidway?—A. Yes, it can be called a slip.

Q. The revenue from the skidway was your own?—A. Yes.

Q. It did not belong to your mother?—A. No.

Q. And you say that the revenue from the gridiron——A. It went to the mother.

Q. It went to your mother?—A. Yes.

Q. To Mrs. Chevalier?—A. Yes.

Q. What became of that gridiron?—A. Well, the time for the elections came. The mother was expropriated, the mother's gridiron was expropriated, I mean to say a valuation was put upon it.

Q. It was not yet expropriated?—A. Well, yes, the notices were given, people had passed at our place on purpose for that.

Q. By that time you had already sold?—A. I had sold.

Q. To Bergevin?—A. Yes.

Q. By the deed produced as exhibit number one?—A. Yes sir.

Q. Was it before or after the elections that Bergevin had anything to do with the gridiron?—A. It was before. It was on the twentieth of September at three o'clock in the afternoon, on the day before the election.

Q. On the twentieth of September at three o'clock in the afternoon Bergevin went to your house?—A. I have a brother who is a conservative like myself—we have always been conservatives—they fixed the matter up at O'Neill's but that is all I knew about it. They fixed the matter up at O'Neill's and my brother came and fetch my mother and brought her down town without consulting her notary, Mr. Parent, and they made the bargain and I only knew of it three weeks later.

Q. Was it a written agreement which they entered into?—A. A notarial agreement.

Q. Have you got that agreement?—A. Yes, here it is. I produce it as exhibit number seven.

Q. This is an authentic copy which I now show you of the sale by widow Thomas Chevalier to Raoul Rene Bergevin?—A. Yes sir.

Q. I see by this deed that she has sold a slip and its accessories? Must I understand that by the word slip on that deed is meant the skidway or the gridiron? —A. The gridiron. That gridiron does not exist but it was the gridiron.

Q. On exhibit number six you have explained what was the skidway?—A. Yes sir.

Q. And here the gridiron is shown?—A. Yes, this belongs to me.

Q. The skidway belongs to you?—A. Yes.

Q. The gridiron which is visible on that photograph belongs to you?—A. Yes.

Q. In the deed produced as exhibit number seven mention is made of a slip. This slip and its accessories do not include the skidway nor the gridiron which appear on the photograph?—A. That belonged to me.

Q. It refers to another gridiron which is situated a little more to the left on the photograph?—A. Yes.

Q. Towards the west?—A. Yes sir.

Q. That gridiron we say was sold by the deed, exhibit number seven?—A. Yes sir.

Q. What became of it?—A. The sale was made without any notice to me. A couple of weeks after the sale—I was not aware of anything—Bergevin telephoned to me and asked me to come down to his place. I went there and he told me: Chevalier, will you sign this? I said what is this? He said: it is the sale by your mother. I said: you don't need me to sign this. He said: yes, you must sign it. I said: if I was not able to sign it on the twentieth of September, I am no more able to-day. Then I went and saw Mr. Dobell and I explained the matter to him. He even asked Mr. Dobell to sign it. I refused to sign it. One day I came home and my mother was crying.

Q. About what time was that?—A. It was on the eleventh of October, on the same day of the retrocession of the sale.

Q. That was some time, about ten days after the elections?—A. Yes, it was on the eleventh of October. Then my mother told me about it.

Q. Your mother told you she had sold?—A. Yes, I knew it then because Bergevin had asked me to sign.

Q. What took place then—did Bergevin go to your house?—A. No, Bergevin telephoned. Bergevin sent word to the mother that if she did not give him back his money he would have her put in jail.

Q. Bergevin sent word to your mother Mrs. Chevalier that if she did not give him back the five hundred dollars which had been given to her as the price of the deed exhibit number seven he would sent her to jail?—A. Yes.

Q. So that naturally Mrs. Chevalier was in great grief and anxiety?—A. Yes, sir, she even died from the shock she received on that occasion.

Q. She died from that shock?—A. Yes.

Q. What took place after that?—A. My sister came to me and told me that my mother was in great grief, she said:" she has done a foolish thing and now she is sorry for it." I went to the other room and said she to me: " Bergevin has sent word to me to give him back the money or else he is going to send me to jail." Then she began to sob. She said " if I get into trouble I won't ask you to get me out of it."

Q. Let us leave all those conversations aside and let us get at the facts.—A. I told my mother : " I shall never give Bergevin the satisfaction to sign this. If you wish, I am going to give you four hundred dollars—she had not got the five hundred dollars.—I am going to give you four hundred dollars and you will transfer the thing to my name and you will give back the five hundred dollars to Bergevin and transfer every thing to my name and I will give you the profits so long as I shall be able to work." She said: " that is all right." We went down to Mr. Parent's and he made a retrocession, which you have here.

Q. Mrs. Chevalier had passed the deed produced as exhibit number seven without speaking to you about it?—A. Yes, even without speaking to a notary about it.

Q. By this deed she had sold to Bergevin the gridiron of which we have just spoken and which is not the one which is visible on the photograph?—A. She had.

Q. But which was built on the land in question?—A. Yes, sir, on my property.

Q. That is to say on the property you had leased from the Bassano estate?—A. Yes.

Q. And this gridiron was precisely the one about which you have spoken, which you had repaired and put together each year as it used to be done and into which you had put new pieces?—A. Yes, sir.

Q. You became aware of this deed about the tenth or eleventh of October?—A. I knew it before that, when he telephoned to me.

Q. You were made aware of it about ten days after the elections?—A. Yes, sir.

Q. By a telephone from Mr. Bergevin?—A. Yes.

Q. And about the tenth or eleventh of October you saw that such was the case because on coming home you found your mother and your family in a state

of great anxiety, your mother crying and much distressed because Bergevin had sent word to her saying:" if you do not give back the five hundred dollars which I paid you for that gridiron I will have you sent to jail"?—A. Yes.

Q. Thereupon, in order to save your mother from the consequences of this business in which she had been taken in you consented to give her four hundred dollars?—A. Yes, sir.

Q. And to buy the whole thing?—A. Yes.

Q. To whom did you hand those four hundred dollars?—A. To my mother.

Q. And it was then that this document was drawn up?—A. Yes, sir, before Mr. Parent, notary.

Q. Before notary Parent, on the eleventh of October, Bergevin re-assigned to your mother, Mrs. Chevalier, the right which he had bought by the deed produced as exhibit number seven?—A. Yes, sir.

Q. For the price of five hundred dollars?—A. Yes.

Q. And on the same day your mother sold that to you the same gridiron and accessories for the sum of four hundred dollars?—A. Yes, to get clear of the whole business.

Q. Such is the story of the gridiron?—A. Yes.

Q. Did you pay four hundred dollars to Bergevin?—A. I paid them to my mother.

Q. Is it to your knowledge that your mother handed over to Bergevin the five hundred dollars?—A. Yes, certainly both deeds were passed in my presence at Mr. Parent's and it was Mr. Parent who gave him the money.

Q. What became of the gridiron?—A. It is in Levis. When Mr. Parent came to visit the premises, he estimated that all the wood that was there was worth about thirty dollars.

Q. Which Mr. Parent?—A. The notary.

Q. The gridiron in question which formerly belonged to your father and which you had repaired as you have said, you removed it to Levis?—A. Yes, sir, some pieces, part of it.

Q. What you removed to St. Laurent consisted in the skidway and the gridiron which are visible on the photograph?—A. Yes.

Q. The other gridiron of which we have just spoken and which passed from your mother's hands into those of Bergevin and which was reconveyed to your mother was removed and brought to Levis?—A. Yes.

Q. When?—A. Last fall.

Q. During the fall of nineteen hundred and twelve?—A. Yes.

Q. You told us that it was quite dilapidated?—A. Yes, it was worn out, it was old, it was made up of all kind of old wood, it was no longer of use, it was old wharf timber, it is not worth anything now.

Q. Since how long?—A. Since last summer. We were obliged to renew it this spring.

Q. Since last summer it was not worth anything?—A. No.

Q. So I suppose that last summer it was not worth much either?—A. No, ever since three years I had been renewing pieces every year—each year it had to be renewed almost entirely.

Q. Each year a gridiron like this has to be renewed almost entirely?—A. Yes, almost.

Q. In order to be worth some thing.—A. Yes.

Q. Since three years it had not been renewed to speak of?—A. Just one piece here and there.

Q. So it was not worth anything?—A. No.

Q. Is it still in Levis?—A. Yes.

Q. It belongs to you?—A. Yes.

Q. So you had inherited this gridiron, or your mother had inherited it when your father died?—A. Yes.

Q. When did he die?—A. He died five years ago last January.

Q. Now listen—you got this gridiron from your father and after using it for one year you renewed a good part of it?—A. I beg your pardon, I did so immediately during the winter. I borrowed money and I bought some wood and in the spring I began to fix it, I lengthened it.

Q. You have told us that a gridiron of this kind, in order to be worth something must be renewed almost entirely each year?—A. Yes.

Q. Or partly renewed in any case?—A. Yes.

Q. You have it in your possession since five years?—A. Yes.

Q. Did you, each year, renew it so as to make it serviceable?—A. Yes, so that I could utilize it.

Q. In order to utilize it you had to renew about half of it?—A. Yes, I daresay one half, because last year I rebuilt one half of the gridiron at my own expense

Q. Did you do the same thing the first year after you had it?—A. Yes.

Q. And in each subsequent year you renewed it again?—A. At least half of it.

Q. At least half of it?—A. Yes, about one half.

Q. And this went on during five years?—A. During four years.

Q. Consequently when the transaction in question was made you might well claim the gridiron as your own?—A. I would not presume to say that it belonged to me but I left it to my mother.

Q. You did this for your mother's sake?—A. Yes.

Q. Who removed that gridiron, your mother's gridiron, and who brought it over to Levis?—A. I did.

Q. Yourself, personally?—A. Yes.

Q. At your own expense?—A. Yes, because they hid themselves from me when they sold it. They did it so that I should not know it.

Q. Now, this gridiron, together with the skidway and the other gridiron had to be removed on the thirtieth of April, nineteen hundred and twelve?—A. Yes, sir.

Q. You were obliged to remove it then?—A. Yes.

Q. Will you now produce as exhibit number eight the retrocession of which you have spoken already made by Raoul Rene Bergevin to Mrs. Chevalier, on the eleventh of October, nineteen hundred and eleven?—A. Yes, sir.

Q. And will you produce as exhibit number nine the sale already referred to by Mrs. Chevalier to yourself dated eleventh of October, nineteen hundred and eleven?—A. Yes, she made a retrocession on the eleventh and she died on the twenty-eighth of the same month.

Q. You said that it was the cause of her death?—A. It was the principal cause. She was suffering from heart disease and since that time—

Q. Will you produce as exhibit number ten a certain number of documents in connection with the beginning of your evidence, when you said that you were in Ottawa and received a telegram, a telephone message and a letter with notes by Mr. Morency—that is to say, a telegram received by you from Mr. Morency on the twenty-sixth of July, nineteen hundred and nine, while you were in Ottawa, also the letter that he wrote to you on the same date in which he refers to his telegram and tells you that he has something very important to communicate to you, also the typewritten notes which he handed to you when you saw him again?—A. Yes, sir.

Q. And in which he speaks of the valuation made by Mr. Scott?—A. Yes.

Q. Was it written with the pen at the foot of the document, was it written by himself?—A. I don't know, he gave it to me as it is there.

Q. With those notes?—A. Yes.

Q. Is it Mr. Morency's handwriting?—A. No, I know Mr. Morency's handwriting, and this is not his handwriting.

And further deponent saith not.

GEORGE VIDAL, of the City of Quebec, Bailiff of the Superior Court, being duly sworn upon the Holy Evangelists, doth depose and say:

Examined by the Commissioner:

Q. You are a Bailiff of the Superior Court?—A. I am.
Q. Do you know Raoul Rene Bergevin?—A. Yes, I do. I know him very well.
Q. What does he do?—A. He is a merchant, on Notre Dame Street.
Q. Did you serve him with an order of this Commission to-day?—A. Yes, I did.
Q. Is this a duplicate original of the order?—A. Yes, sir.
Q. What did he tell you?—A. He told me he could not come as he was going to St. Romuald, where he was called as an expert. I did not ask him what kind of an expert.
Q. At what time did you serve him?—A. I served him at about five minutes to one o'clock.
Q. To-day?—A. Yes, sir.
Q. Where did you serve him?—A. On St. Peter Street.
Q. Did you speak to him personally?—A. Yes, I spoke to him.
Q. And you gave him a duplicate of this order?—A. Yes.
Q. Which he retained?—A. Yes, sir, he did.
Q. Which order is filed as exhibit number eleven?—A. Yes. He asked me for some money and I told him I had none.
Q. He asked you for some money although he told you he did not intend to come?—A. Yes, he asked me if I had any money for him and I told him that I had not.
Q. When you subpeona a man in the city to attend in the city do you have to pay him?—A. I never do.

And further deponent saith not.

CORRY BUILDING, OTTAWA, ONTARIO, 3 P.M., THURSDAY,

APRIL 24, 1913.

Examination of MR. C. F. MCISAAC, by the Transcontinental Investigating Commission.

MR. MCISAAC, sworn and examined :

By Mr. Lynch-Staunton :

Q. What is your first name?—A. Colin F.
Q. You are a barrister and solicitor?—A. Yes.
Q. And practise where?—A. Antigonish, N.S.
Q. Had you any railroad experience before you came onto the Transcontinental Railway Commission?—A. No.
Q. You were appointed Commissioner on August 1, 1905, I believe?—A. Yes, sir.

Q. And you remained on the Commission until the end of 1911?—A. I think the 31st of March, 1912.

Q. So you were a member of the Commission when the original contracts for the construction of the road were let?—A. Yes.

Q. And when they were advertised?—A. Yes.

Q. Are you familiar with the advertisement that was put out, or were you familiar with it at the time?—A. Yes. I was familiar with it at the time.

Q. The advertisement was for the construction of different sections of the Transcontinental Railway, and in that advertisement was there not a condition that each tender must be signed and sealed by all parties to it, and be accompanied by an accepted cheque on a chartered bank of the Dominion of Canada, payable to the order of the Commissioners of the Transcontinental Railway, as follows: for section No. 1, District A, $75,000; for section No. 2, District A, $90,000; for section No. 3, District B, $225,000; for section No. 4, District B, $75,000; for section No. 5, Districts C. and B, $225,000. (I am quoting from the second advertisement.) Now, I understand that all the advertisements were in the same words excepting as to the amount of the deposits for the various sections, which differed in amounts. Is that right?—A. So far as I remember, yes.

Q. Each tender contained the following clause, did it not: "Any person whose tender is accepted shall, within ten days of the acceptance thereof, furnish such additional approved security as may be required by the Commissioners, and sign the contract, specifications and other documents required to be sent to the said Commissioners; and in any case a refusal or failure on the part of the party whose tender is accepted, to complete and execute the contract with the said Commissioners, and to furnish the additional approved security within ten days after the acceptance of the tender, the said cheque shall be forwarded to the Commissioners as liquidated damages for such refusal or failure, and all contract rights acquired by the acceptance of the tender shall be forfeited." That is right, is it not?—A. Yes.

Q. Now you notice, Mr. McIsaac, that beyond stating the amount for which the tenderer must fill in his cheque that accompanies the tender, there is no indication given in the advertisement of what amount of security the Commissioners may require?—A. No.

Q. So that the person tendering could be required to give any amount of security which the Commissioners, in their uncontrolled discretion, might require him to put up before he was allowed to have the contract?—A. Yes. It was put there for the purpose of giving additional powers to the Commissioners, in case the lowest tenderer was a man who was not financially or by experience able to carry out the contract.

Q. Why should that be necessary, when Clause 16 of the National Transcontinental Railway Act of 1903 provides, "that the Commissioners shall accept the lowest tender put in by a contractor who, in the judgment of the Commissioners, is possessed of sufficient skill, experience and resources to carry on the work, or such portion thereof as he is tendering for?"—A. Well, we did it for that purpose and that purpose only. In regard to the very first two contracts that were let, the Quebec one and the McArthur one, both Mr. Lumsden, our Chief Engineer and Mr. Schreiber, the Government Engineer, reported that the prices were too low to enable them to carry out the contract, and there was a difference of opinion among the Commissioners. The Chairman, Mr. Parent, wanted to give the contract to the Grand Trunk Pacific, who were higher.

Q. I just want the reasons?—A. For just such reasons as I have given. We considered, at the time, they were necessary conditions.

Q. As a lawyer, do you now think they were necessary?—A. I do. I think it was a good thing to put in.

Q. Is there any precedent, to your knowledge, for putting such a clause in an advertisement, either by the Government or by any railway company in Canada?—

A. I cannot recall any one just now, but in the public interest, I think it is a very safe thing to put in, and we have never had any complaints from tenderers.

Q. But cannot you appreciate this: that it put absolutely out of the running, in tendering for this work, anybody who was not of very large means?—A. I do not think so.

Q. For instance, a man might put up a $100,000 deposit with his tender for a $5,000,000 contract. You would ask him to put up additional approved security or forfeit his money?—A. I think it would be absurd to suppose such a case. I do not think the Commissioners or any officials of the Government or a Minister would undertake to do anything so outrageous as that. As I said before, we did it in one case.

Q. As a matter of fact, on the McArthur contract you compelled McArthur to put up, in addition to his deposit, $900,000 ?—A. We did so for the reason I told you. Mr. Lumsden and Mr. Schreiber said the prices were low, but the case never occurred again.

Q. But cannot you see there must necessarily be very few people who would risk being put in that position?—A. I never heard of any complaints.

Q. No, because there were very few people tendered for this work?—A. Those who did not tender on account of that would, no doubt, have come to us or the Government or some other source, I should imagine.

Q. We will just consider it: for all this work on nine contracts—Nos. 3, 4, 12, 13, 14, 15, 16, 17 and 20—totalling 760 miles, where the estimated cost would be over $25,000,000, there were two or less tenderers for each of these contracts. That is right, is it not?—A. I do not remember the number.

Q. This document shows you?—A. Yes.

Q. And these men, did they not, when they were awarded the contracts as successful tenderers, immediately sub-let the work to a great number of sub-contractors?—A. Yes, in the usual way. I understand that is what is usually done.

Q. And those successful tenderers did not require any such deposit as this to be put up by their subs?—A. I do not know anything about that.

Q. If I understand it, you approved of the sub-contractors?—A. Yes, but they were only agents of the large contractors.

Q. Did you see their contracts?—A. No.

Q. They were filed here with you?—A. I cannot recall any of them.

Q. But they were submitted to the Board?—A. I do not think so.

Q. Now I ask you candidly, what possible good could come to the Commission by putting a clause in the advertisement that would leave the contractor at the mercy of the Commissioners or lose him his deposit?—A. It was done for that purpose, so far as I know, and for no other, that is, to secure the public interest.

Q. Was it done under anybody else's advice?—A. Not that I know of. I think it was generally discussed at the time by Mr. Lumsden and ourselves.

Q. Would not you know that it would discourage tenderers?—A. I do not think so.

Q. Don't you think it was rather extraordinary that so few people tendered for this great work?—A. I do not know. I think the number of tenderers was just as many as on the Hudson's Bay and the Halifax, Musquodoboit & Guysborough Railway contracts.

Q. Do you know that as a matter of fact?—A. No, just from hearsay.

Q. But don't you think that you would have got more tenderers if you had divided the work up into shorter stretches?—A. We might.

Q. For instance, McArthur's contract amounted to over $20,000,000 and extended over 245 miles. Don't you think a huge contract like that might be advantageously split up into two or three stretches?—A. It is just a question.

Q. Did you personally give any consideration at all to that phase of the question?—A. Quite a lot, and I think it was my own view at the beginning, that it should be split up.

Q. That it should be split up?—A. Yes, that was my idea.

Q. Why did you alter that opinion?—A. I cannot recall all the arguments that were used. It was argued that by cutting up in small sections one contractor would likely interfere with or be in the way of the adjoining one and thus create many difficulties. Again it was stated a contractor with a large section would be in a better position to purchase a large plant and thus do the work cheaper.

Q. But this is a momentous question. One would have to have very strong reasons for arranging this so that only great millionaire contractors could tender for it, should not he?—A. All I can say is that in discussing it with our Chief Engineer, he thought it better to give longer sections than to cut it up into shorter ones, and thereby get too many contracts.

Q. I might understand that if you had carried out that plan, but you allowed the work to be split up into small contracts and dealt with the small contractors yourselves afterwards.—A. I think that is the usual way with all railroads.

Q. Then how would it benefit the Commission, even in avoiding trouble, to cut it into large sections and then afterwards divide it into small sections for sub-contractors?—A. Of course, experienced contractors and those who are financially well off, are not so apt to give trouble to the Government or to the Commission, in failing, and eventually throwing the work into the hands of the Government, and perhaps in the end costing more. That was an argument used by Mr. Lumsden, I think, and a number of the Commissioners too, which probably had a good deal to do with my coming to that conclusion.

Q. Why did you, then, not require the contractors, excepting Hogan & Macdonell, and McArthur, to put up security greater than the deposit?—A. Why did we?

Q. Why did you not? You started out with that plan and you made McArthur put up $900,000, and Hogan & Macdonell put up $568,000 and then you did not make anybody else put up anything at all.—A. Afterwards?

Q. Yes?—A. The reason was that our Chief Engineer, Mr. Lumsden, and Mr. Schreiber, who was also consulted, both reported to us that they felt the prices of these two contractors were too low to enable them to carry out the contract. And for the sake of protecting the public, we required additional security. In none of the succeeding contracts was any report given us by the Chief Engineer, stating the prices were too low, so far as I remember. If you see our report at the time you will notice that there was a difference between the Chairman and the Commissioners.

Q. I read that. In the McArthur contract there was only $746,000 difference between the tender and the Chief Engineer's estimate of $13,756,000.—A. I forget the figures, but I have reference particularly to Mr. Lumsden's report on the tenders. I do not want to speak from memory. I would like to see Mr. Lumsden's report at the time and our own report in accepting these tenders.

Q. Mr. Lumsden's letter to the Commissioners, of March 14, 1906, says: " Herewith please find an estimate of the works tendered for in Districts B. & F., exclusive of viaduct. This estimate, which was prepared before knowing any of the prices given by the tenderers, I believe to be ample for the completion of the work and leave a fair margin of profit for the contractor; but a variation of say ten per cent might be a reasonable price for a tenderer to make. If below this margin of ten per cent, it would, in my opinion, be too low to ensure the completion of the work." Now, McArthur's tender was not much more than five per cent below what Mr. Lumsden estimated, and I cannot find any letter from Mr. Lumsden, in which he says that McArthur's price was not high enough. Mr. Schreiber says, in his report of the 28th of March, 1906, after setting out the facts: " The question to be considered is which of these tenders is in the public interest to accept. No. 4 Tender (that is McArthur's) is $745,624, and No. 2 Tender is $727,270 less than the Chief Engineer's estimate. Considering the larger amount of the tenders, compared with those for the Quebec section, the disparity between the Chief Engineer's estimate and the lowest tender is not so great. However,

I consider that either of these tenders, though low, would cover the cost of the work." And he goes on to say it is a matter for the Commission to settle under Clause 16 of the Act of 1903, whether they will accept it or not. I have already given you what Mr. Lumsden said, which is that it is sufficient. So they both thought McArthur's tender high enough.—A. I do not think they say that, do they?

Q. I think it would be fair to say this: that as the Chairman thought it was low, and as it was below the amount of the estimate, you, as a matter of perhaps super-caution, insisted on the additional security.—A. I would not put it that way.

Q. How would you put it?—A. We did it because it was the first tender we received, and on account of the engineer's report we felt we should exact it.

Q. But the engineers did not express an opinion that the tender was too low?—A. I think they did in one of the reports. I thought they did it in both. The opinion they expressed, even in this, will show it was pretty low—lower than their estimate, was it not ?—

Q. Yes, five per cent lower than their estimate.—A. And we considered that as it was lower than the estimate, it would be safer to make McArthur put up more.

Q. That is your reason?—A. Yes, I have no other reason.

Q. Why did you not follow that out in the tender for Section No. 1? There the tender was $27,000 below the estimate. That was very nearly the same proportion—A. Well, I suppose our Chief Engineer did not raise any question or doubt about that.

Q. But you had his opinion?—A. We were satisfied from his report.

Q. In No. 2 you had more than ten per cent below the estimate and you did not exact additional security; in No. 3 it is more than ten per cent below, and you did not exact it. It was twenty per cent below in that case. The Chief Engineer's estimate was $933,000 and the tender was for $767,000.—A. Our Chief Engineer was satisfied in all these cases. I suppose he estimated more generously than in the other.

Q. I cannot find any such statement by the Chief Engineer.—A. I do not suppose there is.

Mr. Gutelius:—It would be for the Commission to decide these things.

By Mr. Lynch-Staunton:

Q. I will show you another one, a very large one, from 98 miles west of Moncton to Tobique River. The estimate was $2,356,000, and the tender $1,898,000. No additional security was asked to be put up. In fact, generally, they seemed to be below the estimate. Here is one from Quebec, the M. P. & J. T. Davis division from New Brunswick boundary westerly. The estimate was $3,139,000 and the tender was $2,377,000. The 107 mile contract of McDougall & O'Brien was below the estimate. The amount of the tender was $4,559,000, and the estimate was $5,715,000 so you see the tenders were, as a rule, below the estimates quite an amount, and yet they were not made to put up this money?—A. The only occasion on which we ever had to consider the question even at the letting of the first contracts, and it was raised then on account of the difference between the Commissioners and the report of the engineers, both Mr. Lumsden and Mr. Schreiber. These contractors were kicking at the time, that we were too severe with them, and so on. Perhaps we were, but we felt we were doing it solely in the public interest.

Q. It put McArthur to an expense of $200,000.—A. Probably it did.

Q. And if you thought he was low, you were putting him further in the hole, were you not?—A. Yes, if he did not undertake it, he might keep out of the hole.

Q. You got that security from McArthur in a very peculiar form. You got from him three deposit receipts from the Traders Bank of Canada, in this form: " Received from the Commissioners of the Transcontinental Railway the sum of

five hundred thousand dollars, which amount will be counted over to the said Commissioners of the said Transcontinental Railway upon the surrender of this receipt. Thirty days' notice of withdrawal to be given. This receipt is not negotiable. For the Traders Bank of Canada, H. S. Strathy, Manager." You did not deposit any money with the Traders Bank?—A. No.

Q. How could you collect that money from them? They did not make any contract with you to guarantee McArthur?—A. I presume McArthur deposited.

Q. Don't you, as a lawyer, know that you cannot sue on a contract unless it is made by yourself or assigned to you?—A. You are speaking of the additional security?

Q. Yes. Now, after all that trouble, costing McArthur $200,000, you got a receipt from the bank for a deposit which he did not make?—A. That is a question of law.

Q. I am not saying you could not collect it, but is it not rather a formidable question of law?—A. I do not care to give any opinion on that. I think that security was fairly good security, in addition to what else we had.

Q. You were dealing with a very large sum of money, and did it never dawn on you that you should have had either the money or a sure contract with the Traders Bank that they would make good if McArthur failed? It looks to me as if that is a receipt from the bank for money which both you and the bank knew you did not deposit; if you went to sue on that receipt the bank would say, "We never received any money from you," and if you went further then and said, "But McArthur did," they would say, "But you didn't, and we never agreed to guarantee his contract, and McArthur never deposited a dollar either." However, you did not consider that?—A. We considered, at the time, that that was additional security.

By Mr. Gutelius:

Q. Did you pass on that security as being ample and conforming with your recommendations to the Government, when letting the contract to McArthur?—A. I presume so, but of course, as I have said before, I do not like to be positive about these things.

By Mr. Lynch-Staunton:

Q. Mr. Fielding objected to that. He said it should not be done. In a letter written by him to Mr. Parent, on June 14, 1906, he objected to the form of advertisement and to your receiving any such stage money as that, and suggested that the advertisenemt for tenders should show what security was going to be required from successful tenderers?—A. Yes, I remember that now.

Q. Mr. Fielding says, in his letter of the 14th June, 1906: "Do you not think it expedient that whatever conclusion the Government and the Commissioners arrive at should be, in substance, expressed in the advertisements, so that parties tendering will be in a position to know exactly what class of security and what amount would be required of the successful bidders? This would avoid some of the questions which arose upon the awarding of the recent contracts." You did not accept the suggestion of the Finance Minister, and the advertisements continued in the old form?—A. What was the reply to that letter?

Q. On December 17th, Mr. Parent wrote Mr. Fielding, saying that they were about to let certain contracts and suggesting a conference between themselves and the Government, so that the matter of securities required might be settled. Mr. Fielding replied on the 18th of December, 1906, and after referring to a conversation he had on that day with Mr. Parent, goes on to say that he thinks it is desirable "that the commission, in letting contracts, should conform to the practice of the Department of Railways and Canals, and if, owing to the large sums involved, full application of the ordinary rule would require too large a deposit, there might be modification in the percentage, so that the amount deposited, while substantial as security, would not be such as to unduly embarrass intending contractors; but it should be distinctly understood in all cases that the cheque so

sent in when the tender is accepted shall be converted into cash for the Government." That is the opinion Mr. Fielding gave to the Commission: that in the first place they should let the tenderer know what he had to put up as security, and that they should also, when he had put up that security, convert it into cash?—A. Let me have a look at those letters?

(*Letters handed to witness.*)

This letter has reference altogether to depositing deposit receipts to the credit of the Receiver General.

Q. Yes, but you did not do it?—A. I think we did after we got this notice.

Q. You did not deposit McArthur's. All I am drawing your attention to is the fact that Mr. Fielding apparently thought that you should require not any more security from contractors on the Transcontinental Railway than they do in the Departments of Public Works and Railways and Canals?—A. I do not think that is just what he meant.

Q. He insisted in two letters, one on February 20, 1906, and another on May 21, 1906, that these deposit receipts should be cashed, and then on May 26th he wrote to Mr. Parent, "My dear Mr. Parent, I beg to acknowledge receipt of your letter of the 23rd instant. Without expressing any opinion as to the course which the Commission have deemed it proper to take, in relation to the securities required in connection with the construction of the Transcontinental Railway, I think I should remind you that the general practice of the Government's Departments, in relation to such matters, as established by Order-in-Council, is to require all deposit receipts to be sent to the Department of Finance and to be dealt with as so much cash." That is pretty straight?—A. So far as deposit receipts go.

Q. Now we will see the rest. Then on June 14th he makes the suggestion I have already quoted, as to the expediency of stating in your advertisements how much security should be put up, so that contractors could know what they are doing. Then on December 18th he says: "I think it desirable that the Transcontinental Railway Commission, in letting these contracts, should conform as far as possible to the practice of the large constructing Departments of our Government, namely, the Railways and Public Works Departments. The practice there is to require a certified cheque for a certain percentage of the value of the work, which cheque, on the acceptance of the tender, is sent to the Finance Department and is at once converted into cash. I would suggest that you adopt this rule." Then he goes on: "If, owing to the large sums involved, full application of the ordinary rule would require too large a deposit, there might be a modification of the percentage, so that the amount to be deposited, while substantial as security, would not be such as to unduly embarrass intending contractors, and it should in all cases be distinctly understood that the cheques so sent in when the tender is accepted are converted into cash by the Government." This suggestion was not carried out with regard to Hogan & Macdonell and McArthur?—A. I do not remember, but I know we carried it out afterwards.

Q. But you did not carry out his suggestion about naming the security in the advertisements?—A. I do not know just exactly whether that is what he meant. I think he had reference altogether to the lump sum that we asked.

Q. But you did not carry out his suggestion, that you follow the practice of the Public Works and Railways Departments, which never require a man to put up more than five per cent, and that only in contracts under $200,000. It all comes down to this: That it seems to me that the conditions of your advertisements were so exacting that they prevented many people who were quite competent and were financially able to perform this work, from tendering, and thereby the country lost the benefit of competition? A. I do not know. We never heard any objections, as I said before, and we did it for the sole purpose of additional security.

By Mr. Gutelius:

Q. But there was objection. Mr. Fielding speaks of it in his letter?—A. I think his objection was chiefly to the fact that we took a deposit receipt instead of certified cheques or cash.

By Mr. Lynch-Staunton:

Q. You could not have read his letter very carefully. He says in his letter of June 14th: "Do you not think it expedient that whatever conclusion the Government and the Commissioners arrive at should be, in substance, expressed in the advertisements, so that parties tendering will be in a position to know exactly what class of security and what amount would be required of the successful bidders. This would avoid some of the questions which arose upon the awarding of the recent contracts."

Mr. Gutelius: So that there were questions raised?

By Mr. Lynch-Staunton:

Q. Then Mr. Parent replied on the 16th of June, "After the interview I had with you this morning, your letter of the 14th, referring again to the inspection of securities on our contracts, was submitted by me to the other Commissioners. They concurred in the suggestion which you made, and consequently the next time tenders have to be invited, for construction on our line, we will see that an understanding is reached on those points beforehand." But it never was done. I imagine it was forgotten, was it not?—A. I am not sure of that, but I do not remember. My memory of it is that it had reference chiefly to the cashing of certified cheques.

Q. We will go on to something else. In your specifications for the grading and for the general contracts for the building of this railway, engine houses and section houses are included in the general grading contract, but no prices are provided for which this work is to be done. Did you know that?—A. Is that in the first, or all of them?

Q. In all of them.—A. I really cannot remember about that.

Q. The contract is here, and you know that it provides for unit prices, and it also provides that these buildings shall be put up by the grading contractor; but luckily for the contractor, he was not bound to give the prices for constructing them. I want to point out to you the consequence of that: it was this, that while one-three-six, made up of one cement, three of sand and six of gravel, was, on other works, put up for from $10.50 to $16.00, when you came to build these engine houses the contractors got $17.00 for them because they said: We are going to have the work, and you will have to pay our price. We have got you in a cleft stick. Is not that right?—A. I do not know. The prices were fixed by the Chief Engineer.

Q. Yes, but the law required that they should be fixed by tender. It is an error. Why was it not discovered after you found the first trouble. Do you know anything about it?—A. I do not remember.

Q. Now, with regard to bricks. They charged you, for common bricks, $34.40 to $40.00 a thousand, in place. They charged you, for lumber, $60.00, $70.00 and $75.00 a thousand feet board measure, and I figure it out, that little mistake cost $800,000 more than if it had been in the contract. Has your attention not been drawn to that fact before?—A. I do not remember. The Chief Engineer in all such cases fixed prices that were fair and reasonable as I understood.

Q. I want to ask you something about Transcona. Why were those shops built on such an expensive scale? They have cost nearly $4,000,000 to date. I am told by Mr. Calvert that the original intention of the Commission was to spend $1,500,000. That afterwards the Grand Trunk Railway approached the Commission and the Government and an understanding was arrived at, that the capacity and extent of the shops should be increased so as to accommodate both the Eastern and Western divisions, that is, the Transcontinental and the Grand Trunk Pacific, west of Winnipeg; and he says he understood that the Grand Trunk were to pay for the use of those shops, in so far as they were used for their Western division. Now, I am asking if you agree with him, because we cannot find anything about it, and it is an important matter to know what the Commission's understanding was.

Q. Would you mind, if you have any recollection, giving just your own view?—A. The shops were built for the Eastern Division.

Q. You can see it is a very important matter, because the Grand Trunk Railway will use those shops?—A. Yes.

Q. And where is their liability to pay for the use of them? Don't you think there should have been a contract made with them?—A. It was always thought there would be if they would use the shops.

Q. A contract?—A. Yes.

Q. I would like you, very much, to think that over, because we would like to have you write us a letter on that.—A. I would not care to do that, because I might not remember the details accurately enough, but it was always expected that they would pay for the use of these shops for the Western division.

Q. It was recognized, then, that the shops were made larger than originally intended, so as to accommodate the Grand Trunk's requirements for the Western Division?—A. The shops were built for the Eastern Division, but it was considered that if the Western Division would make use of them, they should be made to pay for such use.

By Mr. Gutelius:

Q. Was there any written contract?—A. No.

By Mr. Lynch-Staunton:

Q. Can you tell me by what lawful authority either the Commission or the Government made that expenditure?—A. We felt we had authority to build them, so far as the Eastern Division is concerned.

Q. And you arrived at the conclusion to spend $1,500,000?—A. That is the original estimate given by Mr. Lumsden, but after the plans were prepared by the Grand Trunk Pacific it was found out that that sum would not be at all sufficient to build the accommodation required.

Q. For both railroads?—A. It was considered that $1,500,000 would not be sufficient to cover the requirements of the Eastern Division itself.

Q. Is your statement correct, that your recollection is that the shops were made the size they were to accommodate both divisions?—A. The shops were built for the Eastern Division but if used by the Western they would have to pay for such.

Q. Then by what authority did either the Commission or the Government make shops to accommodate the Western Division?—A. I do not think we had authority to build for the Western Division.

Q. Yes?—A. We assumed we had the authority and that settlement could be made later on.

Q. I want to ask you, did you yourself or did any Commissioner, to your knowledge, receive any sum of money or sums of money from any contractors or intending contractors on the Grand Trunk Pacific?—A. Never.

Q. Never received any?—A. Never received any.

Q. Will I understand that to be a full denial by you of ever having been a party to receiving money for any purpose from any persons who had contractorial relations with this Commission?—A. Yes. I think I can go further, Mr. Staunton, and say that so far as I am concerned neither any contractor, sub-contractor, engineer, or anybody else, directly or indirectly connected with the Transcontinental Railway, ever made a corrupt or what I consider an improper offer or suggestion to me, and I desire my statement to be recorded.

Q. I am glad to hear you say so.—A. So far as I am concerned, I repeat that statement and you can put it as wide as the English language can put it.

Q. Can you say so, so far as your knowledge goes, about others?—A. I know of nothing.

Q. I want to go back again to the tenders. Before the advertisement was put in the press, inviting tenders for this work, estimates were made by the engineers of the Commission, of the probable cost of the work. Is that not right?—A. Yes.

Q. Those estimates, with profiles of the work, were sent in here to the head office of the Commission by the various district engineers. Is that right?—A. Yes.

Q. Those estimates were not supposed to be shown to the tenderers?—A. No.

Q. And if any tenderer saw those estimates, was it or was it not improper, under the practice adopted by the Commission?—A. You mean to show them to the tenderers?

Q. Yes?—A. I think it is improper.

Q. It would give the tenderer who saw the estimate an advantage over one who did not see it?—A. They say it would. Other people say it would mislead them.

Q. But in your opinion, would it not be an advantage to one tenderer if he got that information and his competitor did not get it?—A. Yes. That is generally conceded, although it may not always be the case.

Q. You would not, at all events, have been a party to showing those estimates to one contractor and not to another?—A. No. I took the position, myself, in the beginning, that those estimates were not of much value any way. They were guess work, and I thought it proper to give them to the whole public, for all they were worth.

Q. But it was agreed that the public should not see them?—A. Yes. Mr. Lumsden thought that should be the custom, and Mr. Simon too.

Q. Mr. Simon wrote a very strong letter about it?—A. I was very strong the other way, at first, until I saw all the engineers were against me.

Q. The reason was that they were not reliable and a contractor might afterwards complain that he had been misled?—A. Yes. That is the reason they were not to be shown.

Q. But the tenders were to give unit prices. There were 103 items in the price list, covering clearing, grubbing, solid rock, loose rock, and so on, and the amount was to be put opposite those unit prices, under each of those headings, by the engineers?—A. That is, in figuring out their private estimates for us?

Q. Yes, the amount?—A. Yes. They named their own figures and figured them out upon their own supposed estimate.

Q. I will give you one case. In Fauquier's contract they estimated there was over 600,000 yards of moss. Fauquier said he knew from information he got out on the ground that the engineers thought there was an enormous amount of moss, but he said, "I knew the engineers were wrong. There was a very small quantity of moss. I therefore put in 11c a yard for moss; although I knew that was a cheap price, yet I knew there was not much of it." As a matter of fact, he only had 16,000 yards, and he expected that his competitors, not knowing this, would put in a big price for moss. He says he got the contract on this knowledge?—A. Could not any other contractor have had that knowledge?

Q. No.. He says, "I picked up the knowledge myself?"—A. I suppose any other contractor could do the same thing.

Q. I am not saying that they could not, but I am pointing out to you the advantage of having a knowledge of what was in the estimate. The consequence in this case was that the engineers, when they looked at their estimate, put down $63,000 as the amount at which Fauquier said he would remove 600,000 yards of moss. Other tenderers put down 35c for moss, and so when they moneyed it out, it was found that these other tenderers agreed to remove the moss for about $200,000. So that Fauquier, although for the real work to be done, had in a higher price, yet on the supposed work to be done, he had a lower price and got the contract. Now you can see from that the advantage of knowing what those estimates were, if his fellow-tenderers did not know?—A. Yes. You can say that about all contracts where there are schedule prices and estimates.

Q. That is right. That is a general rule. Therefore, you will agree with me that it would be very wrong to show those estimates to one tenderer and not to another?—A. Yes. I think so.

Q. And it might result in the lowest tenderer for the actual work not getting the contract, as did happen in two cases, might it not?—A. Yes.

Q. Now, do you know, personally, of any tenderer having been shown those engineers' estimates?—A. No. I do not.

Q. Did you ever hear they were shown?—A. No. Of course you see this, that and the other thing in the papers. People sometimes say this man got information or that man got information, but I never heard of such a case from any person who would have knowledge.

Q. You have never heard more than the merest street rumour?—A. Exactly.

By Mr. Gutelius:

Q. Did you know that Fauquiers got their contract on account of that moss?—A. I never heard it until to-day.

By Mr. Lynch-Staunton:

Q. You undertook to settle with the right of way people in Madawaska County, did you not?—A. You mean personally?

Q. Yes?—A. No. I did not.

Q. Did you personally conduct the negotiations for the land, with the men along the right of way?—A. No. I did not. I went down there once or twice and heard them talk about it, but I did not undertake to settle anything.

Q. Who did the work in your time?—A. There were some appraisers, first, and they were getting along very well, but some French people objected that they were all English speaking people and that they could not understand them, so we got an English and a French appraiser. The English appraiser, Mr. Stoat, was one of the appraisers in Victoria or Carleton County and did satisfactory work there. The District and Division Engineers had instructions to watch the work of the appraisers. After they were to work for some time, Mr. Foss, the District Engineer, held back a number of the claims and reported to the Commission when the appraisers were dispensed with and Mr. Stevens was appointed.

Q. Now, Stevens reports to Atkinson on November 30, 1911, after the general election:

"The causes leading up to my appointment may be briefly stated as follows:—

The first appraisers appointed to appraise lands in Madawaska County and take options or agreements were inexperienced in such matters and muddled things badly by seeking to obtain agreements based on land values only and without taking into consideration or allowing anything for damages caused by injurious affection such as severance, loss of water, cutting off from the River St. John, etc., etc., so that it was not long before considerable dissatisfaction was expressed by the land owners, resulting, in many cases, in their refusing to treat with these men, or, in cases where agreements had been obtained, not recognizing the validity of such agreements, alleging fraud and misrepresentation on the part of the appraisers in obtaining them.

New appraisers were then appointed and they, in many cases, went to the other extreme and made agreements with the land owners for what appeared to be excessive amounts, which agreements, on the recommendation of Mr. C. O. Foss, the District Engineer, who considered them exorbitant, the Commissioners would not approve and the District Engineer gave instructions to hold up a number of them, which had not then been paid, pending investigation. This action on the part of these new appraisers made matters still worse, especially among those who, by comparison, had accepted much less, or had agreed to accept much less, and also among those whose agreements were not approved by the Commissioners, and such settlements, before they were held up, had the effect of encouraging all the others to hold out for large amounts

These new appraisers were then discharged and things were at a deadlock with only about 100 claims paid and about 450 not paid, when I was requested by the Commissioners, on the recommendation of Mr. Foss, to meet them at Ottawa (which place was subsequently changed to Quebec) to discuss the rather grave situation which had arisen in regard to right of way matters in Madawaska County."

Q. Is that right?—A. Yes. That is right.

Q. Who picked out these appraisers that Stevens speaks so unfavourably of?—A. They were recommended, I suppose, by some of the members down there. I think they were as good men as we could get in the localities, but the situation in Madawaska was very peculiar. A lawyer, by the name of La Forey, went to most of these people before the appraisers were appointed at all, and made some sort of agreement with them, to fight their claims, for a certain percentage or consideration, and that made it very difficult for the appraisers first appointed to make any settlement at all. The people complained, of course that they were not offered enough, and that was the trouble our first appraisers had. I think Mr. Stevens mentions, in that letter, that the first appraisers only took into consideration the exact value of the land taken, and did not allow anything for damages. The people would not settle with them and we had afterwards to get the other appraisers to try and settle. That letter puts it fairly well, I think. We always tried to get the best arrangements and settlements we could with the people.

Q. Now, the average cost of land in Madawaska County was $457.40 per acre, and in only four instances are buildings included. Did you know that?—A. How much an acre?

Q. $457.40. In Westmoreland, Queens County, Victoria, York and Sunbury County (all in New Brunswick) the cost of land was from $46.00 to $93.00 per acre. Why did Madawaska get such enormous prices? In the other counties the road passes unsettled country as a rule.—A. I would much rather you would get Mr. Stevens to explain that. I would not undertake to do it. I do not remember any of these cases in particular, but I remember this: Along the Transcontinental Railway in Madawaska County the houses are all pretty well in a line, and the C. P. R. goes pretty near their buildings, so that with the Transcontinental on the other side of their buildings the road really injures their land very much.

Q. What you say then, to put it fairly, is that conditions were peculiar in this county?—A. Exactly. They were peculiar, and if you ask Stevens or any person down there who knows the individual cases, I think you would find that fully explained. At least, we did all we could to fight down the prices and get them as reasonable as we could.

Q. Will you explain this to me: You first thought of entering Winnipeg from Transcona, through St. Boniface, alongside of the Canadian Northern Railway. That was afterwards abandoned, and on the advice of the Chief Engineer you ran a straight line farther west of the Canadian Northern into Winnipeg, where you built that great embankment. Is that right?—A. That is what you call the new entrance into Winnipeg?

Q. Yes. Now will you tell me why you did not treat with the owners and secure that land either by compulsory proceedings or private contracts, before you built the railway?—A. Before we built the railway?

Q. Yes.—A. I do not think that has been done anywhere.

Q. But was it not an awfully reckless thing to do?—A. We would have had to go to the Exchequer Court to settle with them.

Q. It has never been settled to this day.—A. No.

Q. And Mackenzie & Mann are now claiming $2,500,000 for a piece of their land. Don't you think it would have been the part of wisdom to have quietly approached those men before committing yourselves to the building of the railway? —A. Yes, if you could get it.

Q. You should make a try, shouldn't you? So far as I can find out, they never tried to secure it. They simply built over the land and left themselves in the hands of the land-owners.—A. Or left themselves in the hands of the Exchequer Court.

Q. Is that a prudent way to act?—A. What applies to one place does not always apply to others.

Q. You agreed on the terminal, you built the bridge across the Red River, and so made it impossible for you to deviate your track, before you even filed your plans, and let the owners see you were coming and get ready for you. Do you think that was prudent?—A. Of course it may have been prudent in some cases and not in others.

Q. How could it be prudent in any case?—A. I think, as a rule, we tried to get settlement beforehand, but we had great difficulty in that Winnipeg end of it, I may say, because everybody wanted a big price.

Q. But was it not the part of prudence to try and settle on the cost before you went in?—A. Well, I will tell you. No. We bought the land for the shops first of all, at what we considered very good terms under the circumstances. We were found fault with a great deal afterwards, for giving excessive prices, and we were told that we should have gone to the Exchequer Court.

Q. But you know that as a public commission, you are bound to be found fault with?—A. Yes.

Q. And when you accept the responsibility of a Commissioner, you should act as a prudent business man, quite irrespective of street criticism.—A. I am not giving that as a reason, but as an answer to your question that we should, in all cases, settle beforehand.

Q. Now before it was known that you were going to put the shops where they are, you bought the land. That was a business proposition?—A. Yes.

Q. Why didn't you buy the land before the people knew you were going into Winnipeg?—A. I do not know that we could, because the question was under consideration for a long time, as to the two routes.

Q. On the advice of your engineer, you could make up your mind quietly, where you were going, and then get busy and buy the land just as you bought the land for the shops, could you not?—A. I do not remember how much of that land was not taken. I am just talking now without recollection of the facts.

Q. As I understand it, Mr. Young took umbrage at the criticism that was levelled against him, for his purchase of these shops, and said, " Oh well, after this we will let the court decide. We won't decide to buy it ourselves any more.—A. I have no doubt he did.

Q. He expressed himself in that way, did he not?—A. He was very much disgusted at the criticism of what he considered a very good bargain, and I have no doubt he did. We could not settle with Mackenzie & Mann who I think controlled most of the land, as they strongly opposed this Northern entrance and we were delayed over a year in bringing suits in the Exchequer Court on account of Judge Cassel's decision that he had no jurisdiction. The matter had to go to the Supreme Court of Canada.

By Mr. Gutelius:

Q. In connection with letting the McArthur contract, we find, in looking over the moneyed-out statements, that the Chief Engineer filled in some twenty prices that were left blank in McArthur's tender. Did you know that they were filled in at this office by the Chief Engineer? Had you any personal knowledge of it?—A. So far as I can remember, the Chief Engineer after he moneyed out the tenders and reported the amount of each, informed us that he filled in some prices that were left blank in McArthur's contract. The Chairman, I think, called his attention to it and Mr. Lumsden stated that McArthur was the lowest according to his quantities, or words to that effect.

Q. Do you remember receiving or seeing Mr. Lumsden's estimate of $114,000,000. Was that given to the Commissioners?—A. $114,000,000 for what?

Q. For the building of the whole railway.—A. I cannot remember.

Q. There was an estimate made, and I just want to know whether you personally saw it.—A. Do you mean the estimate sent to the Government?

Q. No. It was sent to you, I think. Here is a print of the original. You will probably recognize it.

(Document handed to witness.)

A. If this was sent to us, I should probably have seen it.

Q. You would not forget, when the $114,000,000 first came out. And now in connection with this large security, which you had in your power, as Commissioners, to demand from tenderers or contractors: in the light of subsequent events, do you not recognize that that advertisement had the effect, or would have the effect of deterring contractors from figuring, unless they knew about what you were going to demand?—A. From my experience, I do not think it has had that effect.

Q. It did have the effect, did it not, of placing the work in the hands of one or two contractors? A.—I never heard of any person that was prevented. Possibly a man of small means might have been prevented. The question is, whether it is desirable and in the public interest that people who are inexperienced and without financial means should get the work.

Q. If you would have to accept the tenderers, yes; but you had in your hands, according to the Act, absolute control. It looks, you know, to us, as though competition, on account of that advertisement, was throttled, and I do not see how you can escape agreeing, to a certain extent, that our idea is right.—A. I do not agree for this reason: it was put in so far as I am concerned, solely in the public interest. I never saw any reason, in the actual working out of the contracts and tenders afterwards, for thinking that any person or persons who otherwise might have tendered, had been deprived from tendering by that advertisement. That is, so far as any complaint reached us.

Q. Your position is based on the lack of complaint. You would not be surprised if I showed you a list of contractors who would have tendered under the ordinary conditions of the Public Works Department.—A. Contractors will say anything. You are trying to draw me out.

Q. Just as a business man, I wanted to see if I could not get you to agree with what seems to be right.—A. It might, of course, prevent some people from tendering, but if there was any contractor who had any fears on that score, he could make inquiry and ask what the conditions were.

By Mr. Lynch-Staunton:

Q. Do you think it was right to let the Grand Trunk Pacific tender at all?—A. I would not like to pass an opinion on that.

By Mr. Gutelius:

Q. Did the Commission agree to and authorize the construction of a double track at Winnipeg on that new line?—A. This line we are speaking of?

Q. Yes?—A. I do not remember that.

Q. It is a double track line?—A. Yes.

Q. You think you just accepted Mr. Grant's recommendation?—A. I presume so. What is the record?

Q. He recommended the construction of that line and it was built double track. The point is, had you any right, under the Act, to build double track railroad?—A. No. I think the Act says single track, does it not?

Q. Yes.—A. Unless the entrance into a city like Winnipeg would be more like a terminal, and it might be double tracked under that heading, might it not?

Q. Do you remember whether you have given the Commission any opinion as to whether they could build double track under the Act, at such a place?—A. I forget.

Q. There is also a double track from Cap Rouge Bridge down to the yard at St. Foye, where a large amount of money was required for the heavy rock cut. Do you remember how that double track happened to be constructed?—A. No, unless it was considered part of the terminals.

Q. You do not think the proximity of the Canadian Northern had anything to do with that double track?—A. I do not remember.

Q. You do not remember any discussion as to the Canadian Northern proposing to use double track?—A. No.

Q. Were you down at Quebec the day they settled the price of 55 cents for train fill on tracks Nos. 9 and 10 (the Davis and O'Brien division)?—A. No, I do not think so.

MR. LYNCH-STAUNTON: No. He would not.

By Mr. Gutelius:

Q. Did you have anything to do, as a Commissioner, with the adoption of the use of pneumatic caissons in the construction of the foundation of the Cap Rouge Viaduct where it crossed Cap Rouge River?—A. Our Chief Engineer and Mr. M. J. Butler reported in its favor and the Commission approved the report so far as I remember.

Q. But you were personally not a factor in arranging it?—A. Except in approving the engineer's report.

Q. Did you understand the Act to provide for betterment on the part of the Government, after the railway was completed?—A. Yes.

Q. That the Government would furnish additional capital money, as it was desirable or necessary? Your understanding of the Act was after the road was turned over and the lease completed the Government was still under obligation to expend capital money, where desirable or necessary? Is that right?—A. Yes.

Q. And knowing that, you did not take advantage of it to defer any capital expenditures, did you?—A. I cannot remember any particular case.

Q. You do not remember one case where a big expenditure was to be made in the future?—A. No. I do not remember, unless you can call my attention to some particular case.

Q. Did it occur to you, while you were an active Commissioner, that upon the cost of this railway would depend the possibility of securing lower rates between the East and West?—A. Yes.

Q. Did you appreciate that if the railway was made unnecessarily expensive, the rent which the Grand Trunk Pacific would have to pay for it would be so high as to prevent their being able to carry freight more cheaply over that road than at present rates?—A. Of course, the more the road would cost, the higher the rental would be and the higher the rental, the more they would have to get out of the traffic to pay for it. But an engine on a road with the grades and permanent structures of the Transcontinental Railway can haul, so engineers say, nearly double the freight, and the maintenance and operating expenses would be less.

Q. That is right. Was that the idea that the Commission kept before it at their various decisions?—A. I cannot speak for the others, but speaking for myself, that was the idea. We all wanted to build it as cheaply as we could, that is, consistent with the grade.

By Mr. Lynch-Staunton:

Q. Is there any place along the whole railway where you took cost into consideration at all?—A. There is a portion of the road which we did not want to construct according to the plans and specifications.

Q. You had the control of those plans and specifications and did not you make them such that it was the very highest priced single track railroad that could be built?—A. Yes. We could have built it for less money if we had chosen an inferior standard.

Q. It was a very expensive class of railroad you undertook, was it not?—A. Yes.

Q. Do you know any railroad in America as expensive, I mean in its original construction and subseqeunt development?—A. I do not know. I cannot remember just now.

By Mr. Gutelius:

Q. Was there ever discussion before your board on the subject of economy, in connection with the size of yards?—A. I think so. I think we discussed these matters with a view of getting everything done as cheaply as possible, consistent with the plans and specifications.

Q. I am speaking of the criticism of the plans. You may as well be frank about it. Did you ever see a letter written by the Minister of Railways or by your Chairman, Secretary, or Chief Engineer, the subject of which was economy in the execution of this work?—A. Well, I do not know what would call for that. We certainly had objections from the engineers of the Grand Trunk Pacific as to the cost, and so on.

Q. Can you point to a letter or a line that was ever written and signed by anybody, on the subject of economy in connection with the construction of this railroad?—A. I do not remember any letters, but we always endeavoured to honestly carry out the work according to plans and specifications, so far as I know.

Witness discharged.

(CORRY BUILDING, OTTAWA, THURSDAY, APRIL 24th, 1913.)

Examination of Mr. W. S. Calvert, by the Transcontinental Investigating Commission.

Mr. Calvert, sworn and examined:

By Mr. Lynch-Staunton:

Q. What are your initials?—A. W. S.

Q. Where do you live?—Q. That is pretty hard to say. My home is in Strathroy, Ont.

Q. And your business?—A. Well, I guess I am a manufacturer. I am interested in two or three different companies.

Q. You have been a manufacturer all your life?—A. For the last twelve or fourteen years.

Q. Were you ever in the railway business?—A. No, only while I was on here.

Q. You never had any connection with railway building or operating until you became a Commissioner?—A. No. I have just been a business man all my life.

Q. When were you appointed a Commissioner?—A. In October, 1909.

Q. Whom did you succeed?—A. Mr. Reid.

Q. Which Reid?—A. Robert Reid, of London.

Q. Will you tell me who were the other members of the Board at the time you joined it?—A. Mr. Parent was Chairman and the Commissioners were Mr. Young and Mr. McIsaac.

Q. None of the contracts for the construction of the road were advertised for or awarded after you became a Commissioner?—A. No. I think the last one was in 1908, a year before I was appointed.

Q. So it would be vain to inquire from you anything in connection with the advertising or letting of these contracts. You know nothing about it beyond what we can learn for ourselves from an inspection of the papers.—A. Exactly. All the contracts were let before I came on.

Q. When you joined this Board, were any particular duties assigned you, in connection with the business of the road?—A. No, nothing in any particular way. I was just appointed a member of the Board and we went on in the usual way that a Board does. We did rather understand that each one would look more particularly after individual sections: for instance, I was on D and E.

Q. Did you exercise all the patronage in Ontario?—A. You mean appointing young men to go up on the line?

Q. Yes.—A. Yes, pretty much up there, east and west of Cochrane.

Q. You were a member of the Board at the time of the Hodgins inquiry?—A. No. I do not think so. I was at the time of the Lumsden inquiry.

Q. When the controversy over the classification which culminated in the Lumsden inquiry arose, did the Commissioners, so far as you know, take any legal opinion on the interpretation of the clauses in the specification relating to classification?—A. I do not think I can answer that. I really do not remember. As I understand it, we engaged Mr. Smith to look after our own interests, also Mr. Chrysler. The investigation was asked for by us and I was under the impression that everything necessary was done.

Q. But can you recall whether either Mr. Smith or Mr. Chrysler or any other counsel gave any opinion as to the meaning of the specification on solid rock?—A. I must confess that I cannot just recall that. He may have, but I do not recall it.

Q. You were not a Commissioner at the time that most of the work, the classification of which was then under consideration, had been done?—A. No.

Q. Were you present at La Tuque at the time the contractors and Mr. Lumsden were there?—A. No. I never was on the work with Mr. Lumsden.

Q. Was Mr. Lumsden in the employ of the Commission while you were there?—A. No. Mr. Grant had been chief engineer for some time before I came on.

Q. So that you can give us very little reliable information about the Lumsden or Hodgins controversy?—A. I know nothing of them.

Q. All that you know about them is really hearsay?—A. Yes.

Q. You know that the chief engineer was appointed, not by the Commission, but by the Government?—A. Yes.

Q. By whom, in your time, were the engineers who were appointed, appointed?—A. Well, I do not know that there were any new engineers, except resident engineers, appointed during my time. I think that Mr. Molesworth, Mr. Balkam, Mr. Doucet, Mr. Eustace, Mr. Foss, Mr. Poulin, Mr. McFarlane and Mr. Grant were engaged on the work when I came on. A odd resident engineer might have been put on afterwards.

Q. What was the date of your appointment, again?—A. October 21, 1909.

Q. Was the question of momentum grades ever raised in your time?—A. No.

Q. Do you understand what a momentum grade is?—A. I understand it means a kind of toboggan slide down which a train is allowed to run, and then it runs up the other side. I am not very much in favour of it, but I understand that is what it is.

Q. You say you are not very much in favour of it. Why not?—A. I do not know that I can give you any reason further than that. according to my judgment, the level road is preferable

Q. You would prefer the level road if you thought the toboggan slide, as you call it, was cheaper and just as useful?—A. Yes. I certainly think I would prefer the level road to a road of the other class.

By Mr. Gutelius:

Q. No matter what it would cost?—A. I would not say that, because, according to Mr. Grant, the intention is to fill up grades and level up the road later on.

By Mr. Lynch-Staunton:

Q. You are referring now to Mr. Grant's letter of December 3, 1912.—A. Yes.

Q. In that letter Mr. Grant says, "Disregarding ordinary sags in long fills or fills over soft ground, it has been considered inadvisable to bring up to profile grade, at present, and take contractors' prices for the necessary work. There are, as you will see, only two places where virtual grades have been adopted, and the saving effected with this slight change amounts to $27,797. They are both well within velocity limits, and will not affect the hauling capacity of a locomotive to the extent of a single pound. The introduction of virtual grades in railroad construction, for the purpose of economy in first cost and subsequent economy in operation, by reason of reduced interest charges, cannot be considered other than as a good business proposition." That is Mr. Grant's opinion. Did you ever hear the question of momentum grades discussed while on the Board?—A. No.

Q. Were you at all familiar, at that time, with the advisability or inadvisability of adopting them?—A. It never was discussed, to my recollection. The question for us was to build a four-tenths grade road to the East and a six-tenths grade road to the West.

Q. And you understood that meant to keep the grade uniform from one end to the other?—A. With the exception of one or two places where they used pusher engines, I think they call them.

Q. Don't you know that if you are building a given length of railroad, and if you have a pusher grade in one spot, that destroys it as a low grade road?—A. I suppose it does, to a certain extent. It means a little more expenditure to keep a pusher engine to haul the other train up, but I suppose, if it is a question of saving a large amount of money, then you must consider whether it is better to use a pusher engine or to spend an additional amount of money.

Q. I quite agree with that.

By Mr. Gutelius:

Q. What is the difference between actual and virtual grades on a railroad?—A. I do not know that I can just answer that properly.

Q. Did you ever hear that matter discussed?—A. No, not if you put it that way. In fact, I may say I was not very conversant with momentum roads until this question came up.

By Mr. Lynch-Staunton:

Q. Since you left the Board?—A. Yes.

Q. Do you know anything about curvature in railroads? Did you ever hear it discussed at the time you were on the Board?—A. Oh, well, sometimes, I suppose, the question was discussed, but not very much at the Board meetings.

Q. You never became very familiar with it?—A. I would not like to say so.

Q. You could not form any judgment as to curvature?—A. I would not like to give an opinion on a thing like that.

Q. Did you have anything to do with the Transcona shops?—A. Something.

Q. Were they undertaken before you came on the Board?—A. They were started in 1908, I believe. The contract was let for about one and a half million

dollars, which was supposed to be all that was necessary, so far as the Transcontinental was concerned, and was what Mr. Lumsden recommended.

Q. Why did you go to the additional expense?—A. That question, of course, was settled later by the Government.

Q. That is just what I want to find out. What was settled by the Government, what did they do?—A. I cannot give you the full particulars, further than this: As I understand it, there was a meeting of the Grand Trunk people with our Chairman and some members of the Government, in regard to further expenditure for the building of those shops, and they eventually decided, the Government, that it was necessary to have additional shops, and on the report of our Chairman, which, as you know, had to be concurred in by the Government, we went on and built the rest of the shops. Our intention, of course, was that the Grand Trunk Pacific would pay rental or a percentage of the cost of what would be more than one and a half million dollars, as was intended in the first place, when Mr. Lumsden recommended that figure. But that has not really been settled yet.

Q. In your understanding, they were for the joint use of the Eastern and Western road?—A. It was supposed that it would do for both portions of the road, and that the Grand Trunk Pacific should certainly make an allowance to the Transcontinental for the use of those shops.

Q. Now, we will get into a country with which you are familiar, that is to say, the purchase of land. Everybody has more or less knowledge of that.—A. I never purchased any land.

Q. Why did not the Commission make a bargain for and secure the right of way into Winnipeg before they built the road?—A. Well, of course, I cannot tell you that, because the road was built into Winnipeg before I came on: that is, not the last portion, but the road up to Dundee Junction.

Q. Do you know that Mackenzie & Mann put in a claim for about $2,500,000 for the land on the St. Boniface side of the river, and that it has never been settled in any way?—A. There was no claim put in to us.

Q. Don't you think it was an unwise thing to build a railway through a man's property and then deal with him afterwards?—A. The first intention was to build alongside the C. N. R., but they objected to having another road built along their line. Later on, Mr. Grant, Mr. Poulin and, I think, the council of St. Boniface, with the concurrence of the Grand Trunk Pacific people, recommended the route we have now. That question, of course, was debated for a considerable time, and referred to the Minister of Railways; but all the interests, and especially the Grand Trunk people themselves, who were to pay the interest on the money, wanted the route we have now, and to my mind, although it may have cost more money, we were building a road which would be there forever, and I think if I were going to run the G. T. P. I would like to have my line into a city like Winnipeg.

Q. You know, I suppose, that in cities ten times the size of Winnipeg the railroads do not have it?—A. I suppose that is true, and in some places they don't even allow the engines to go in.

Q. In Chicago and New York they do not have their own entrance.—A. I think it would have been built alongside the line if Mackenzie and Mann had agreed to it.

Q. When you came to that conclusion, why did you not settle about the land before you built the railway, instead of making the bargain afterwards?—A. I do not think we could have settled. It had to be expropriated.

Q. Why didn't you expropriate it?—A. Was it not expropriated?

Q. You built over another man's land. It was not expropriated and has not been settled to this day. It is now in the courts.—A. I should think we would have had to expropriate it.

By Mr. Gutelius:

Q. The road was practically completed before the plans for expropriation were filed.—A. That may be. I could not just say in regard to that point.

By Mr. Lynch Staunton:

Q. You had nothing to do with it?—A. I was more particularly interested in what was considered my own section, Cochrane, and I endeavoured to look after anything there that I could. Just the same as Mr. McIsaac looked after his eastern portion, and the Chairman his Quebec portion, and Mr. Young the West. Then, if anything came up, it would be referred to the particular member of the Commission concerned, to get all the facts concerning his own division. So that I cannot speak about that other portion.

Q. After you became a Commissioner, Mr. Mattice issued a circular to his staff, which I produce:

COPY OF CIRCULAR NO. 252, DISTRICT "D."

OFFICE OF DISTRICT ENGINEER.

Cir. 252. NORTH BAY, February 24, 1910.

To Division Engineers:—

Mr. Calvert is asking that no appointments be made to the staff in future without his consent, and these instructions must be carried out, except in so far as cooks and building gangs are concerned.

Promotions of the staff will also be referred to me before being carried into effect.

Please acknowledge receipt.

Yours truly,
(Signed) C. L. MATTICE,
District Engineer.

Do you recollect that?—A. I do not just recollect in regard to that. I know I had to call Mr. Mattice down in regard to purchases. I insisted on his buying very, very small things and what was needed immediately, through our Purchasing Agent, and I gave him instructions not to go on buying without consulting our Purchasing Agent. In regard to these appointments, I do not just remember, but I suppose I wanted to know what he was doing. I did not want any engineer to make appointments without at least advising us in regard to the matter, and perhaps asking us about it before he did anything.

Q. That is what it would amount to?—A. Yes.

Q. But after you came on the Board you made all the appointments for that district yourself?—A. No engineers, I think, but the linemen, cashmen, timekeepers, and appointments of that kind.

Q. Just the ordinary run?—A. Yes, and I appointed both Grits and Tories, I can tell you that, only I wanted to be in touch with Mr. Mattice. I did not want him to run haphazard, without our knowing what he was doing, and I did insist on his seeing our Purchasing Agent before buying a large amount of goods.

Q. Did you take any interest in the classification up in that district?—A. I cannot say I did. That was left in the hands of our engineers; I had nothing to do with it; I did not presume to classify.

Q. That is what I understand. All the policies for the construction of the road were adopted before you came on the Commission ?—A. I think that is right.

Q. So that it is correct to say that it had got beyond the stage of discussion when you came on?—A. That is my impression. We were endeavouring to carry out the contracts as best we knew, as we went along.

Q. The contracts were based on a preconceived policy, approved and settled?—A. Yes.

By Mr. Gutelius:

Q. Is there anything that you would like to tell this Commission, that has not been brought out in your evidence?—A. I can only say that all the time I was on this Commission I was under the impression that everybody tried to do what was absolutely right, as between the Government and the contractors. We did not want anybody to have an advantage: we wanted to deal fairly with everyone, and personally, I know of nothing that I can say was wrong. We may have heard things, but from what our engineers reported to us, I believe everybody tried to carry out his duty as honestly as he could.

By Mr. Lynch Staunton:

Q. You say that so far as you are concerned you were guilty of no wrong yourself, nor was anybody else?—A. I am not conscious of being wrong any way.

Witness discharged.

(NATIONAL TRANSCONTINENTAL RAILWAY ENQUIRY COMMISSION MEETING AT OTTAWA, FRIDAY, APRIL 25TH, 1913.)

Before G. Lynch-Staunton, K.C., Chairman: F. P. Gutelius, C.E.

S. N. Parent, former Chairman of the Transcontinental Railway Commission, sworn:

Mr. Staunton: Mr. Parent has written saying that he wishes to take his examination in French and I think he is perfectly right. I was suggesting to him that perhaps it could be taken in English, but we will see as we get on. Do you want me to put the questions in French, Mr. Parent?

Mr. Parent: Just as you like.

Mr. Staunton: Is that your desire?

Mr. Parent: Of course, if the question is put in French I will answer that way.

Mr. Staunton: Well, we will see. I will commence in English.

Q. How long were you Chairman of the Transcontinental Railway Commission?—A. From, I think, the 1st of August, 1905, until the 6th of October, 1911.

Q. You were Chairman during the time that the contracts for the building of the road were let?—A. Yes, from the first contract until October, 1911.

Q. Before advertising for these contracts, you had estimates made by the Commission's engineers of the probable cost of the work about to be let?—A. Yes.

Q. The estimates were made by the District Engineers and their assistants, and then forwarded to the Chief Engineer?—A. Yes.

Q. I see, that under the advice of Mr. Collingwood Schreiber, it was decided by the Board that the estimates made by these engineers should not be shown to the tenderers?—A. Yes, sir.

Q. And the reason given for that was, that as the estimates might be inaccurate the contractors afterwards might complain that they had been misled by the Commission?—A. Yes, one of the reasons.

Q. I want to draw your attention, Mr. Parent, to Contract No. 8, which is the contract embracing the railway from a point at or near the Quebec Bridge, running easterly 150 miles; do you recall that contract?—A I think so, that is the Davis contract.

Q. Yes, just the 150 miles east of the Quebec Bridge—now the tenders for that contract were—you can take these to be right:

No. 1. Russell Chambers, Limited, $5,213,542.
No. 2. O'Brien & Mullarkey, $5,196,745.
No. 3. Grand Trunk Pacific Railway, $5,018,554.
No. 4. M. P. & J. T. Davis, $5,011,346.

I leave out the cents. These were all the tenders that were taken then?—A. I presume so, the tenders speak for themselves.

Q. That is correct, I tell you it is correct, I will let you look at them in a little while. The estimates were made by the engineers at unit prices on a form which contained 101 printed items; is that right? I will put this in in a moment? —A. Yes, the form speaks for itself.

Q. The engineers on contract No. 8 originally put in no estimates for items 24, 25, 26 and 27 which are:

24. Framed trestles per 1,000 feet board measure, except stringers.
25. Gaps, walings, and braces for pile trestles, per 1,000 feet board measure.
26. Sawn ties and guard rails for bridges, per thousand feet board measure.
27. Stringers per thousand feet board measure.

Do you remember that there was no estimate put in for timber for trestles, included in items 25, 26 and 27?—A. You mean quantities?

Q. Yes, for example, they said in the case of common excavation that there would be 3,091,210 cubic yards estimated?—A. You mean that was the estimate made before tenders were called?

Q. Yes exactly. Did they estimate they would not require any lumber at all for trestles?—A. Well, they may have done so.

Q. Do you remember that?—A. Those things were made by the engineers themselves.

Q. Do you remember that when you first saw the estimates that they had no allowance for timber for trestles?—A. We told them they should have an estimate for lumber.

Q. Mr. Lumsden says, I might as well explain it to you, and Mr. MacPherson says that there was no estimate for lumber for permanent trestles, and afterwards the engineers changed it and put in an estimate for lumber for trestles ?—A. Well?

Q. That you then came and told them to strike that out, that it should not be put in?—A. The estimate for lumber?

Q. Yes?—A. I never did that, on the contrary we obliged them to have them in.

Q. Come over here and examine this, I want you to be sure, he says that after he put them in you told him to change it back to where it was?—A. He made a mistake there. The quantities which they prepared before tenders were made by the engineers and nobody at all interfered with them because they were the sole judges of what was required, and I could not on my own hook come and dictate to them what they had to do on these estimated quantities.

Q. Mr. Lumsden and Mr. MacPherson say that the engineers made these estimates, forwarded them to the head office, and that then he gave you a copy of this estimate, is that right?—A. If he gave it to me, he gave it to the Board.

Q. He gave it to you for the Board; he says he gave it to Mr. Parent?—A. He may have given it to me; anything that came to me that way went to the Board.

Q. Then he says that after the advertising was done he changed this estimate and put in these items: 25, 26 and 27, that you, after he made these changes happened to see it, and that you said to him: why did you make these changes, and he explained that he thought they might require some lumber, and that you told him to put them back the way they were before and that he then changed them back and left them out, what do you say to that?—A. Well if Mr. Lumsden says that he must have a very queer memory. Whatever instructions were given to him were given to him through the Board, and so far as these things are concerned, for my part personally I had no reason at all to have that changed.

Q. Did you have it changed?—A. Not that I recollect. I do not believe I ever did either. I do not see any reason at all why they should have been changed. It would be an advantage to nobody. Everybody would be on the same footing. I do not see why I should suggest any change.

Q. I will show you why I am asking you, and you will see the gravity of it in a minute. They say you got them to sign this estimate after it was changed, and that this is the one they changed they signed?—A. Was that before tenders were called?

Q. No, after the tenders were called, after the tenders were in?—A. Well, I suppose if they signed it it must be correct.

Q. They say you got them to sign it?—A. What do they mean?

Q. I am trying to call your attention to it, do you remember?—A. There is one thing, Mr. Chairman, that I would be the last man to force the Chief Engineer or anybody else to do anything they would not like to do, and I suppose if they signed it it must be according to their own will and because it was right.

Q. Well, but you see the position now is this: that in the first place before the tenders went out the engineers had made an estimate, and that estimate did not include any estimate for timber on these items?—A. These items never went to the contractors and never went to the bidders; they are not supposed to go to the bidders. They never went to the bidders, they would deceive them.

Q. I will come to that in a minute?—A. All right.

Q. Then they say that you told them that they should change those estimates after the bids were in or while the contractors were figuring on them?—A. That I told them?

Q. Yes?—A. That is not so, I never did that.

Q. Then they say they made a fair copy of it so as to bring the estimates back as they originally were, and that you got them to sign it; that is the only case in which they signed it?—A. When you say "they" do you mean I was dealing with MacPherson?

Q. MacPherson and the Chief Engineer?—A. MacPherson was the last man I was dealing with. I dealt with the Chief Engineer; I had only to deal with MacPherson in a very few cases.

Q. I will show you what he says. He says: that the Chairman on the 21st of January asked for the statement of the engineers' estimated quantities for each item of the Schedule, Form 89, covering the five sections for which tenders were closed on the 14th of February—do you recollect that?—A. I may have to the Chief Engineer; I do not remember.

Q. And that you got these copied. He says that when the Chief Engineer after the tenders were called for, altered these items, 24, 26, and 27, and instead of estimating nothing for these, he estimated for item 24: 732,190 feet instead of nothing; for 26, 166,600 feet instead of nothing; item 27, 192,780 feet instead of nothing. He said that when you saw that you told him to strike out these items and not to estimate for any of these items?—A. When?

Q. Some time between the 15th and 18th of February, 1907?—A. Can I look at that letter?

Q. Yes, I do not know that I want to show you the whole letter, as it is a private letter, yes I will hand it over to you now?—A. It is a letter from MacPherson.

Q. Yes, there may be something in it of a private nature?—A. Never mind, if you don't want to show it.

Q. Oh yes, I think you ought to see it—I will show you the letter, do you understand it now?—A. I do not understand it very much, because I do not know where he got all that.

Q. What answer do you make to that, he says that when you saw that on the form you said to strike out these items, and not to estimate for any of these items, 24, 26, and 27?—A. I never did that, because there was no reason in the public interest to do so.

Q. He said then that you had him and Mr. Lumsden sign these revised estimates, make a clean copy of it and bring it back to the original shape and sign that?—A. I do not recollect that.

Q. Come over here till I show you something—the reason I am so particular about it is this—I will put this in as an exhibit. Hugh D. Lumsden and D. MacPherson, Assistant Chief Engineer, signed this apparently on the 8th of February, 1907. Now, as a matter of fact, somebody has erased the figure one from that 8. It was really signed on the 18th of February, and somebody has erased the figure 1 from before the 8, making it to read that it was signed on the 8th of February?—A. It is the first time I have ever seen that paper.

Q. Mr. Lumsden was not here on the 8th of February at all; he was, as he swears, at Kenora on the 8th of February, and some person has altered his certificate, so as to make it appear that he signed that document before the tenders came in for that contract, while, as a matter of fact, he signed it after the tenders came in. Do you say you know nothing about that?—A. I never knew anything about that. This is the first time I saw the papers. I would not be surprised if anything is made up in that way it has been made up since I resigned.

Q. It has been made up by somebody has it not?—A. You say so.

Q. I do not say so?—A. I do not know when it was done, I know nothing about it. For my part I am prepared to swear now that it is the first time I saw that document. If the alteration which you suggest there has been done, I am perfectly well convinced that it has been done since I resigned here, they have the new administration going on and they try to find fault with the last administration.

(The document was filed as Exhibit A in Mr. Parent's evidence.)

Q. You say you do not know anything about that?—A. So far as I am concerned I do not see anything at all which would affect the public interest as to these quantities that you are talking about there.

Q. I am going to show you how it could affect the public interest?— A. Well that is my answer at present.

Q. Now supposing that one of the tenderers had seen the original estimate, he would know that he would not be required to furnish any of the material covered by items 24, 26, and 27; if he saw the estimates, he would know that?—A. That would be a matter of assumption.

Q. That is not assumption at all. If the tenderer had seen it he would know. I do not say now that the tenderer did see it, but if he had seen it he would know that he would not be required to furnish any material under these three items?—A. That would go so far as to say some tenderers may have had the privilege——

Q. Not yet; after a while it will go that far but not yet; I say now, that if a tenderer saw it, you will agree with me that he would know that he would have no material under these three items to furnish?—A. That may be the case but at the same time the form of contract would tell the contractors that any quantity or anything they would have seen would not have been binding on the Commission, and they would do it at their own risk and have no claim against the Commission. Even if they had seen it, I do not know what good it would have been to them. That is why we refused them the quantities.

Q. You keep your mind on this now: the fact that these three revised estimates were struck out, gave M. P. & J. T. Davis that contract?—A. What do you mean?

Q. M. P. Davis would not have got that contract if that change was not made in these estimates?—A. I cannot see that. The way the things were made was this: tenders were coming in, they were put in a box with two keys, one kept by me and one by the Secretary. The tenders were opened publicly by the Board and copies made of their contents by the clerks and they were referred, without any names on them at all, to the Engineers' Department. Then they came to

the Engineers' Department and they did not know who they were coming from and they were asked to figure who was the lowest tenderer, and they came back with a report showing who were the lowest tenderers.

Q. Let me show you where the trouble would be. If M. P. Davis saw that estimate, or anybody in his firm, I do not mean him particularly and I do not mean he did see it, but if he saw that estimate he would know that he was not going to be asked to supply any of that material, and he tendered under these heads; M. P. Davis and J. T. Davis tendered for item 24, $80 per thousand; item 26, $80 per thousand; item 27, $85 per thousand—that is a huge price for that material? —A. I cannot say.

Q. He did so tender; there is the thing signed by you?—A. The tenders speak for themselves; there is no question about them.

Q. Now then you see the only difference between Davis and the Grand Trunk Pacific Railway, on the tender for that contract, was $7,200, and if these items had been left in they would have raised Davis' price by $27,000 and they would have lost the contract by nearly $22,000; do you agree with that?—A. For my part it is a hypothetical question; to assume a fact that I do not know anything about.

Q. All I ask you to agree with me in is this—— A. You suppose things there, that Davis might have seen something that somebody else might not have seen?

Q. Yes?—A. I deny that.

Q. So far as you are concerned, I want to ask you—— A. So far as I am concerned Davis had no more privilege on the Transcontinental Railway than anybody else had.

Q. The inference is that the Davis firm, or some of them, might have seen that estimate, you say you do not know about that; you say if they did it was not with your knowledge?—A. If the Davis firm had seen something, I do not think they did, if they did the Grand Trunk people or somebody else would have the same chance of seeing it. There was no more preference for Davis than for any other tenderer. So much so, that for my part from the start I was against all these contractors, I was in favor of the Grand Trunk Pacific Company accepting the whole work, because I was convinced that if we did give them the contract we would have saved money, delays, and trouble. My opinion was this: they were the company who were to pay the interest on the capital expenditure and I thought they would be interested in saving money and building the line at a low cost, and as they were also obliged to have the Western Division line finished for 1911, they would have been anxious to get the line finished in that time, and doing that, if they had been late in their contract, they could not come against the Government or the Commission for delays, because they would have been the principal party and it would have been their own fault. From the very first contract I made a distinct report to my own colleagues on that. I knew Davis for a long time before but at the same time I made a dissenting report, stating that the work should be given to the Grand Trunk Pacific at the price of the lowest tenderer. My idea was to give them the preference of the work at the price of the lowest tenderer.

Q. Then you utterly deny any knowledge of the Davis firm having had information with respect to the estimates, that everybody else did not get?—A. If Davis got some information I am prepared to swear that somebody else who asked for it got the same information, because nobody would say, on the quantities like that, even if they had seen them, what the figures would be. You will find in some of the contracts a difference of two or three million dollars and a figure of a few dollars here and there would not make any difference in that.

Q. There is only a difference of $7,000 in this case?—A. In this contract it happened to be that, but certainly the Grand Trunk Pacific, or anybody else, if they asked for information which was given to somebody else, would have got it. There was no preference given at all.

Q. As a matter of fact, did the Davises see these estimates to your knowledge? —A. I cannot say that.

Q. Do you know whether they did or not?—A. I do not think so, for this reason, that I do not recollect at all the changes that MacPherson and Lumsden speak about.

Q. Did you show the Davises this estimate?—A. I cannot say that. If it was asked of me, and I thought it was in the public interest to do so, I would have done so. Davis may have seen it, or the Grand Trunk may have seen it, or somebody else may have seen it, but I gave no preference to Davis over anybody else.

Q. I understand that, but I want to know if you remember whether or not these estimates were shown to the Davises?—A. I cannot swear that.

Q. You do not know whether they were or not?—A. I cannot swear that.

Q. You do not know whether you showed them to them or not?—A. If I did the others must have seen them too.

Q. Do you remember whether you showed Mr. Davis?—A. I cannot say as to that. There were so many things going on in the Commission that you could not recollect a special thing like that. We refused to give quantities to any contractor from the start, because by doing so we might get into trouble.

Q. The chief engineer, Mr. Lumsden, says he was asked not to be present at the Board meeting when the tenders were opened?—A. Why?

Q. I do not know?—A. Neither do I. If there was anything we were cautious about it was the opening of tenders. The whole Board was there, the Secretary was there. I was opening the tenders and handing the cheques to the Secretaries, I initialled every one of them and handed them over to the Secretaries, and they were sent afterwards to the engineer upstairs without my name. I do not see why the chief engineer should not have been present. I do not know why he was not present and I do not recollect he was asked to retire. It would, of course, be a matter of no importance to be cautious, if one contractor received the estimates and another did not?—A. Nothing has been done like that to my knowledge.

Q. Mr. Fauquier said he got his contract because he knew from his own observation on the ground or from information he got from engineers out on the ground, that there was no moss on his contract, or very little moss, and he said he knew that the engineers thought there was a great deal of moss and he put in a tender at twelve cents for moss, and the other tenderers put in thirty-five cents for moss, and he got the contract, and instead of there being 655,000 cubic yards of moss, as was estimated, there was only 13,550 yards. It was a great advantage to know the estimates you see. Fauquier says he got his information, picked it up out there. Do you know anything about that?—A. Nothing at all, it is the first time I heard anything about it.

Q. Were you in favor of giving out the estimates?—A. I was against it.

Q. Why?—A. Because so far as I knew it, the engineers were not far enough advanced in their location, and these estimates were supposed to be changed, and in doing so we would have deceived the tenderers and the contractors if we gave out these estimates, because they would say we have been in good faith in tendering on the estimates, and they have afterwards been changed, and we will have a claim in equity against you. I was against it, and it was referred to Mr. Schreiber, who gave his opinion on that point also. That is why I say now, speaking about Contract No. 8, that I did not see any difficulty at all about the estimated quantities, because we put them aside completely, and if it happened that there was a small difference between the Grand Trunk Pacific tender and Davis' tender, for my part it makes no difference at all so far as the public interest is concerned, because Davis was the lowest tenderer, and he was a perfectly good contractor, and he got the contract.

Q. Listen to what Mr. Lumsden swore on the point of not being present when the tenders were opened:

"Q. On the 14th February your entry in the diary is that you were in the office all day and you say: 'Commissioners opening tenders, not present'?—A. Yes."

"Q. Why were you not present when the tenders were opened?—A. I was not wanted. I was not asked to be present. I was asked to leave."

"Q. It was intimated to you that your presence was not required?—A. I do not know it was on that occasion, but it was on a previous occasion."

"Q. Why didn't you remain when the tenders were being opened?—A. Because I was told by the Commissioners I was not wanted. I do not say I was told on that day, but on a previous occasion I was told they would open the tenders themselves and give me the figures afterwards."

"Q. It was understood you were not to be present when tenders were opened?—A. Yes, that is the long and short of it."

You have heard the evidence of Mr. Lumsden given at his examination with regard to his not being present in the office when the tenders were opened. Would you like to add anything to what you have already said on this point?—A. I say this: It may have happened that somebody, somebody on the Board I cannot say whom, would have made the remark that as the tenderers were to go back to the chief engineer's staff, and as the staff were not to know the names of the tenderers when they figured them out, it was better that he should not know the names of the tenderers, which he would if he were present. We wanted to keep the engineer's staff completely in ignorance of the names of the tenderers, so as to get an unbiassed report from the engineers.

Q. That may be the reason, and it seems to me it may have been a very good reason?—A. Yes, because there was nothing to hide from the chief engineer, because everything was done on his report and approval all the time, and if he was asked to withdraw or not to be there it was to protect him in one way or his staff by not knowing who the tenderers were, and thus to give a completely fair report to the Board.

Q. Mr. Parent, you are an eminent lawyer in your own province, are you not?—A. Well I will say I am a lawyer.

Q. You are a lawyer in your own province?—A. I was.

Q. You have been connected with large business enterprises most of your life?—A. Yes, for a good many years. Since 1890 I have been in public life, in politics and municipal affairs.

Q. You were Premier of the Province of Quebec?—A. I was Premier for five years, from 1900 to 1905.

Q. And you were Mayor of Quebec?—A. I was Mayor of Quebec from 1894 to 1906, nearly 12 years. I resigned to come to Ottawa for the chairmanship of the Transcontinental Railway Commission.

Q. And you enjoyed a large practice at the Bar for years ?—A. Yes, I made my living from my practice.

Q. So that you ought to be pretty familiar with contracts ?—A. I know something about contracts.

Q. I want to ask you some questions about this contract respecting the Cap Rouge Viaduct. The Cap Rouge Viaduct was a great bridge built across the Cap Rouge River near the Quebec Bridge and it cost $316,000 to build it, and it was designed to carry the railway from one side of the Cap Rouge Valley across on its way to the Quebec Bridge, that is right is it?—A. Yes, sir.

Q. In Contract No. 9, District B, which was originally let to HoganMacdonald, it was afterwards assigned to M. P. & J. T. Davis?—A. No, it was afterwards assigned to McDougall & O'Brien.

Q. Explain that?—A. After that 50 miles of that contract was sublet to M. P. & J. T. Davis.

Q. And the 50 miles covered the Cap Rouge Viaduct?—A. Yes, sir.

Q. Under the contract which is dated 15th May, 1906, they agreed to have the work completed by the 1st of September, 1907?—A. The contract speaks for itself.

Q. Is that correct?—A. That is correct, if the contract says so.

Q. You agree with me that it is correct?—A. Yes.

Q. And that included the building of the Cap Rouge Viaduct?—A. Yes, well it included the foundation.

Q. It included the substructure in connection with the Cap Rouge Viaduct?—A. Yes, and the substructure was to be done by the Dominion Bridge Company.

Q. Now, the concrete price on this contract did not cover pneumatic caisson excavations?—A. No.

Q. Did it cover all material which was used in the sub-contracts of the Cap Rouge Viaduct?—A. Yes, sir.

Q. Now under their contract the Davis people had to put down these foundations for the price mentioned in the contract?—A. You mean pile foundations?

Q. Yes, whatever foundations were necessary, they were to put down for the price mentioned in the contract?—A. Yes.

Q. And they had to have it completed by the 1st of September, 1907?—A. Yes, I presume so.

Q. You know that the Board changed this contract and allowed them to use pneumatic caisson works at an additional cost to the Board of $250,000, do you know that?—A. Well, when the work was proceeding on the foundations they discovered that it was too risky to build a viaduct on these pile foundations and it would require pneumatic foundations. The matter was referred to their own engineer, to Mr. Lumsden, and I think Mr. Uniacke, one of the bridge engineers here, was asked to look into it, and the matter was referred to Mr. Butler, then Deputy Minister of Railways, and to report on, and after looking over the matter they found that it would be too risky to do the work as the contract was signed, and they ordered the new work, which was approved, if I remember well, by order in council.

Q. Here is what Mr. Uniacke says. Mr. E. A. Hoare was in charge of the construction of the bridge site; is that right?—A. Yes.

Q. The preparations for work for the sub-contractors were begun in May, 1906, that was before the change was made?—A. Yes.

Q. Mr. Lumsden, dealing with the question of river piers, favored a bottomless caisson with the addition of piles, and Mr. Uniacke was directed to make plans on these lines, is that right?—A. Not that I know of. Of course that was the special work of engineers, and what they say there must be correct, but I do not know anything about it.

Q. You are not familiar with it?—A. No, in an enterprise like that we have to rely on the report of the engineers for these works. We were not experts. Sometimes they don't agree amongst themselves either.

Q. Read this letter of May 31st, 1912, to Mr. Gutelius, from Bridge Engineer Uniacke, and tell me what you think about it. You see what is stated on page 5 of that letter which is in effect: The Chairman decided these questions himself and directed what the engineers were to do?—A. Mr. Uniacke is mistaken there. I would never take on my own shoulders to decide such an important question. When the engineers are in a bad box, generally speaking they try to put it on somebody else's shoulders.

Q. Is it true they met you and Mr. Davis in your office. He says in this letter: while we were discussing it we were summoned to the Chairman's office, bringing down the plan to lay it before him. Mr. Davis was already with the Chairman. Is that so?—A. That may have happened.

Q. Then he says: the Chairman refused to consider the change decided upon by Mr. Butler. Is that so?—A. My own recollection is that it was the contrary. When they found out the thing was wrong, it was referred to Mr. Butler and Mr.

Schreiber, and then Mr. Schreiber referred it to Mr. Butler to act himself, Mr. Schreiber having no time. He referred it to Mr. Butler to fix the matter. At that time we did not know what would be done.

Q. He says that you did not follow Butler's advice?—A. We did follow Butler's advice because the order in council was passed later on on Butler's advice. Butler and Davis and Uniacke fixed the price for the pneumatic works amongst themselves.

Q. Was Mr. Butler's design accepted?—A. It was I think Uniacke's design, but it was fixed between Uniacke and Butler.

Q. Mr. Uniacke says he recommended the design "C" and that was approved by Mr. Butler?—A. I suppose that was correct.

Q. But that you did not follow that design but changed it?—A. In what way was it changed?

Q. Here is what he says was done: the Chairman refused to consider such a change decided upon by Mr. Butler, impressing upon me the fact that time was the most important consideration and that the object was to have the Cap Rouge trestle ready by the end of 1907 so as to complete the transport and heavy structural section of the Quebec Bridge from Belair Station and Cape Rouge for the Quebec Bridge, and instructed that the caisson method be followed. I thereupon gave Mr. Davis the following day blue prints of the pneumatic caissons and a bill of timber and iron which he took with him to Boston, where I believe he placed the order for Southern pine. It was Mr. Davis' statement that he could have the pneumatic caissons finished ready for steel by August, 1907, and he did as promised, but the lamentable fall of the Quebec Bridge in August rendered further haste unnecessary and it was finished in 1908. What he says is that that was your absolute direction that Davis should be given this job, that it was to be done by pneumatic caissons and that you took that on your own shoulders?—A. Why should I have done that, I did not know anything about it. We referred the matter to Mr. Butler.

Q. Did you do it, that is the point?—A. As far as I remember I could not have done it, because for my part it would have been impossible to do it, not knowing the importance of it from an engineering point of view.

Q. You did know it was going to cost a lot more money?—A. I did not know how much it would cost more. The change was not suggested by me, the change was made because it was a risky job.

Q. They said it was only made because they wanted the job done in a hurry?—A. Not at all.

Q. That is not so?—A. No, it is not so at all, because at that time Davis objected to go on with the work because it was a risky job, the viaduct might have sunk and gone down with the first foundation and the change was made in the public interest so as to avoid a collapse of the viaduct.

Q. Why could he not have put it down with open caissons instead of pneumatic caissons?—A. The engineers agreed on that I presume, because it was not my report, it was the engineers' report that they should be pneumatic.

Q. Under the contract, you had a right to make them put down any form of foundation you liked; you had a right to change your plan if you wished?—A. I do not know about that.

Q. The first contract was given to Hogan & Macdonald?—A. Yes.

Q. Did they make an assignment of that contract to Davis?—A. Yes.

Q. He was bound to put down whatever kind of foundation you directed?—A. Certainly.

Q. And he had to put the foundation down at the price of the contract?—A. Certainly.

Q. Then why should you give them more money?—A. Because the work that was done afterwards was more expensive work but it was sure work.

Q. But you could make him put down that work without giving him more money?—A. No, you could not do it. The engineer said pneumatic work was the best way, and we had to follow it, and the Government followed it all right, and

the order in council was passed on it, and Uniacke and Butler approved of the pneumatic work being the best.

Q. Do I understand you to say it was not a question of base but a question of safety?—A. Certainly, it was a question of safety, it was a question of safety for my part.

Q. So far as you know it was a question of safety?—A. Certainly, we would never have changed that work only it was a risky job the way it was at first. I do not think the contractor will tell you otherwise or the engineer on the spot either. The work would be dangerous work and would not stand.

Q. Why were M. P. Davis and J. T. Davis given contract No. 29A without public competition?—A. Which contract is that?

Q. The Quebec branch line running down the river front from St. Foye to Champlain?—A. They had that contract before on the old Quebec Bridge contract.

Q. Did they get a new contract?—A. They had a new contract because at that time it was contended that Davis had some rights from the Quebec Bridge. The Quebec Bridge having assigned their rights to the Government, the Government afterwards gave their right to Davis. It was referred to us and there was an agreement entered into with Davis with the consent of the Grand Trunk Pacific.

Q. But the law says you have to advertise all your contracts?—A. And so we did.

Q. How could you override the statute?—A. We did not override the statute.

Q. You did not advertise that contract?—A. That contract was agreed between the Government and the Grand Trunk Pacific.

Q. What right had the Government to do that?—A. It was Quebec Bridge work, not Transcontinental work at all. The Government assumed the obligation of the Quebec Bridge Company, and that is why Davis continued the work.

Q. Your idea is that this was a Government contract and not a Transcontinental Commission contract?—A. It was a Quebec Bridge contract and the Quebec Bridge having assigned its obligation to the Government, the Government assumed the obligation and Davis was contractor for the Quebec Bridge Company for that part of the line.

Q. You know what is called the Sillery incline?—A. Yes.

Q. You built a road there quite off the Transcontinental Railway entirely, and it cost $40,000?—A. What kind of a road?

Q. A highway road down from Sillery Church, what right had you to do that?—A. They made a change there, that replaces an old road with a new one.

Q. The old road is there yet?—A. The other one, I understand, is in the way of the yard, and so on, if I remember well.

Q. Is it there yet?—A. It may be there yet but it belongs to the Transcontinental Railway Company, it is an exchange that was made.

Q. What I can learn about it is this: that a lot of your fellow-citizens down there came up with a petition and told you that that road was dangerous now by reason of your having a railroad down there and they got you to build them a nice road up the side of the hill for their benefit?—A. I can tell you one thing, Mr. Chairman, about the cutting of that road. I never saw the road myself. I remember there was a delegation came to my office in Quebec for that, and the matter was referred to Mr. Doucet, district engineer, to look into and what has been done has been done, there through him on his approval, and what he has done, I cannot say exactly, because when I left the Commission the road was pretty well advanced, but I am surprised the road cost $40,000.

Q. You have never gone over it?—A. No, I do not think I ever went over that road, because when I went there first it was not started. There is no doubt there is something in what they were saying about the danger at one spot. The slip might have given away and caused an accident, and it was a deep road there and the horses might get frightened. At the time it appeared to me that it was a small affair to make the change. If the amount comes to $40,000 it never entered into

my mind that this would be such an expensive undertaking. Doucet was down at my office one day and I think he said it would be a small affair. I cannot understand how it would cost that sum of money for the highway alone.

Q. I have not before me the exact figures, but I know it was very nearly $40,000 or perhaps more than that?—A. If it is, I can hardly believe it and I do not know why it cost that much.

Q. To pass on to the question of classification, you heard of the Lumsden Enquiry?—A. I did.

Q. The Lumsden Enquiry grew out of a dispute between Mr. Lumsden, the chief engineer, and some of his own engineers as to what should be classified as solid rock?—A, Yes, solid rock, loose rock, and common excavation.

Q. Mr. Lumsden said that his opinion was that only rock should be classified as solid rock, do you recollect that?—A. Yes, you have all the letters on the file; at first he said that.

Q. And that the rock should be at least a cubic yard, that was his first idea?—A. Boulders of the size of a cubic yard.

Q. Then he said that Doucet and the other engineers were classifying the smaller stone, stone less than a cubic yard which they said was cemented together so that they had to be blasted, they classified that as solid rock, and Mr. Lumsden objected, is that right?—A. I suppose it was at first.

Q. At first, I am coming to that—then he said that the contractors got five or six opinions from eminent lawyers to show that they were right and that Lumsden was wrong?—A. That the district engineers were right?

Q. Yes, that the district engineers were right and the chief engineer was wrong?—A. Yes, and also the Deputy Minister of Justice gave an opinion.

Q. I will come to that but I want first to get the history of this. Then he says that you gave him a copy of these opinions of these lawyers obtained by the contractors?—A. Everything was brought before the Board and referred to the chief engineer in due course.

Q. I did not mean you, I mean the Board. The Board gave him a copy of these opinions and then he said he consulted Mr. Collingwood Schreiber; you understood he consulted Mr. Schreiber?—A. Yes, I think his letter says so.

Q. And Mr. Schreiber suggested that he should put in the famous clause with the blue print, about assembled rock, do you remember that, I will show you the blue print—rock in masses of over one cubic yard or assembled rock, which in the judgment of the engineer can best be removed by blasting. He says that was put in by reason of the lawyers' opinions and by reason of what Collingwood Schreiber said?—A. We had to take for granted that blue print with Lumsden's signature.

Q. That is right, I only want to know if that is what he said?—A. No, I do not know.

Q. He signed it all right?—A. He did.

Q. Did you yourself ever ask for any lawyer's opinion about that specification as to what solid rock meant?—A. Our own lawyer for the Commissioners of the Transcontinental was the Minister of Justice. That is the man to whom we had to go for an opinion on matters connected with law. We had our law clerk here but on these important matters we had to go to the Minister, and generally his Deputy Minister gave us an opinion for the Board.

Q. I cannot find that you ever got an opinion from the Minister of Justice on that question?—A. We had it from Mr. Newcombe the Deputy Minister of Justice.

Q. But Mr. Newcombe does not give any opinion as I read it; Mr. Newcombe was the Deputy Minister of Justice and according to the file, on December 20th, 1907, Mr. Ryan, now Secretary, under instructions from the Board, wrote a letter to Mr. Aylesworth, Minister of Justice, and Mr. Ryan in that letter says:—

"The Commissioners accordingly herewith submit all the correspondence "with respect to this matter and request that you will favor them with your

"interpretation of Clauses 33, 34, 35, and 36 of the general specifications for "construction, a copy of which accompanies this letter."

Then Mr. Newcombe answered that letter on January 6th?—A. Yes.

Q. And he says in his letter:—

To the Secretary of the National Transcontinental Railway Commission.

"Sir,—

"Referring to your letter of the 20th ultimo, with which you submit the correspondence with regard to the classification of excavated material and the interpretation of Clauses 33, 34, 35 and 36 of the general specifications for construction of the Eastern Division of the National Transcontinental Railway, I have the honour to state that upon consideration of the papers submitted I see no reason to differ from the classification stated by the chief engineer in his letter to the Commissioners of the 16th ultimo except as to the statement that rock, assembled (the individual pieces of such assembled rock exceeding one cubic foot in size) . . . . such as in the judgment of the engineer may be best removed by blasting, is to be classified as solid rock excavation under clause 34. I do not understand upon what principle the chief engineer limits the size to pieces exceeding one cubic foot. The specification speaks of rock found in ledges or masses of more than one cubic yard which in the judgment of the engineer may be best removed by blasting. If 'rock assembled' may be regarded as a mass of rock, and if it may be best removed by blasting, I do not see why under the specification it is material whether the individual pieces exceed or are less than one cubic foot in size, and if 'rock assembled' is not regarded as a mass, the minimum limit of size which can be classified as solid rock exceeds one cubic yard.

"It seems to me, however, that these quantities are largely engineering questions, the solution of which depends principally upon the judgment of the engineers and, having regard to the terms used in the specifications, I must call your attention also to clause 15 of the contract which provides that the engineer (this term to be construed as defined in clause 2 of the contract) shall be the sole judge of work and material, and that his decision on all questions in dispute with regard to work and material shall be final, thus expressly stipulating that such questions as these shall be submitted to the decision of the chief engineer.

"I wish to say that it is very difficult for me to advise generally upon the interpretation of these specifications, and a general ruling may not infrequently overlook the peculiar facts or circumstances of an individual case which if stated might lead to an exception or modification. I would prefer to advise upon any special case as it may arise, having all the particulars and circumstances stated.

"Papers returned herewith.

"I have the honour to be, Sir,
"Your obedient servant,

"Sgd., E. L. NEWCOMBE,
"Deputy Minister of Justice."

"Ottawa, 6th January, 1908."

He does not give any opinion at all in that letter?—A. I am not here to criticise Mr. Newcombe. I had to take his opinion as it was.

Q. That is why probably the chief engineer has modified his opinion when Mr. Newcombe writes this:

"To form a judgment as to whether or not it is best to move by blasting the chief engineer must view the work in process or leave it to be decided by the engineer in charge, whose duty it is to frequently visit the work during its operation and be governed thereby and act accordingly."

That meant that the engineers who saw the work done day by day were the best judges of the classification? I guess that is right, but the question there is as to being judges of the material; it is not to judge what the specification means?—A. Well, the specification interpreted by the legal opinion and also by the modification brought afterwards by Chief Engineer Lumsden, in his letter of January, in which he shows that the legal opinions on record were correct, because he had to follow them, and which also corroborates the opinion given by the district engineers who saw the work going on in their respective districts.

Q. But what I am coming to is this: the first thing to be done was to find out what the meaning of Clause 36 was, what the meaning of the language was. No lawyer gave an opinion on that on behalf of the Commission that I can find?—A. Well, so far as we were concerned, we were satisfied with what had been on record. We had the best lawyers' opinions on record and the Minister of Justice did not in his letter raise any objection to the opinions given by these gentlemen which were taken irrespective of party politics, and I am convinced that the interpretation given by these lawyers is perfectly correct.

Q. But, Mr. Parent, you are too old a lawyer to take the opinion of your opponent's lawyer?—A. Well, I can test that. A good lawyer, a man of reputation that would put himself on record on a thing like that, takes the legal point of view strictly speaking, as to the right interpretation, because it is not a matter of a few dollars with the lawyer to leave his client in error and at the same time try to have a case before a court of justice with the result that he would be beaten.

Q. Then why don't we in this world always take the opinion of the plaintiff's lawyer and settle it?—A. That is why we went to the Department of Justice which by their opinion does not at all contradict the legal opinions on record given by the parties interested. Of course our law clerk also is a lawyer. His opinion was to the same effect. For my part, I may add at once that I am perfectly convinced there was no error and that there was nothing done on that interpretation which is against the public interest.

Q. Let me ask you this: we went over the ground at La Tuque and all over that country, and we asked the engineers to show us any cementing material and they did not do it, and they said under oath they could not show us any in the whole country?—A. These engineers have been examined in the Lumsden investigation. There were photographs produced at the time. We went over that place a few times ourselves and we found out it was a very hard piece of work. It was one of the worst you could find and now as Chairman of the Transcontinental Commission I have always based myself a good deal upon the interpretation of Clause 7 of the agreement which says that for the economical construction of the work, specifications and plans should be approved before the work started and inspection and supervision of the work was given to the Grand Trunk Pacific because they were the party interested in the construction, they were the party interested in the payment of the expenditure incurred and any difficulties that arose were to be settled by arbitration, and when the engineers of the Transcontinental and the Grand Trunk agreed on the classification, we would naturally suppose everything was all right. When they disagreed as they did in some cases, arbitrators were called in to settle the differences, and nothing more could be expected from the Commissioners. We could not go on the work hundreds of miles away on the line and follow what was doing from day to day. We had to rely on our own engineers and also on the supervision of the Grand Trunk Pacific in doing that work.

CORRY BUILDING, OTTAWA, ONTARIO, 2.30 P.M., FRIDAY, APRIL 25, 1913.

Examination of MR. PARENT, by the Transcontinental Commission.—Continued.

By Mr. Lynch-Staunton:

Q. Before you let any of the contracts, you advertised for tenders?—A. Yes.

Q. And the advertisement provided that besides the deposit to be made by an intending contractor with his tender, the Commission could require him to furnish such additional approved security as the Commissioners might require? —A. Yes.

Q. And in the case of District F (the McArthur contract) McArthur had to furnish an additional security of $900,000.—A. As I told you this morning, I did not agree with my colleagues as to McArthur's contract. I made a dissenting report. I you refer to the record, you will find out, I think, that my three colleagues made a special report on that work and they asked, I think, fifteen per cent guarantee.

MR. GUTELIUS: Thirteen per cent for Hogan & Macdonell and ten per cent for McArthur.

MR. PARENT: I was not a party to that at all. In McArthur's it was ten per cent, as you say, but I did not sign the report. I dissented from my colleagues.

By Mr. Lynch-Staunton:

Q. Mr. Fielding said, when it was brought to his attention, that the advertisement should not contain a clause like that: that the contractors ought to know what they were going to be required to put up. In his letter to you on June 14, 1906, he says: "Do you not think it expedient that whatever conclusion the Government and the Commissioners arrive at should be, in substance, expressed in the advertisements, so that parties tendering will be in a position to know exactly what class of security and what amount will be required of the successful bidders. This would avoid some of the questions which arose upon the awarding of the recent contracts." And in your letter to Mr. Fielding of the 17th December you said it would be necessary, in order to avoid the possibility of any misunderstanding with the contractors or tenderers as regards the nature of the securities to be required, to have the question settled in the near future. Mr. Fielding, in reply to that letter, wrote to you on the 18th of December, and said: "I beg to acknowledge receipt of your letter of the 17th, on the subject of contracts on the Transcontinental Railway. I had an opportunity of having a conversation with you on this subject to-day, in the anteroom of the Privy Council, so that now I need only write in confirmation of what I then said, I think it desirable that the Transcontinental Railway Commission, in letting these contracts, should conform as far as possible to the practice of the large constructing departments of our Government, namely the Railways and Public Works Departments. The practice there is to require a certified cheque for a certain percentage of the value of the work, which cheque, on the acceptance of the tender, is sent to the Finance Department and at once converted into cash. I would suggest that you adopt this rule. If, owing to the large sums involved, full application of the rule would require too large a deposit, there might be a modification of the percentage, so that the amount to be deposited, while substantial as security, would not be such as to unduly embarrass intending contractors, but it should in all cases be distinctly understood that the cheques so sent in, when the tender is accepted, are to be converted into cash by the Government." Now, after that, the Board did not change the form

of its advertisements at all. You still left the contractors in the dark, as to what would be required from them as security. How do you explain that?—A. We kept to the old form, and I do not think there was a change of 5c. between the contractors and the Commission.

Q. Why did you not accept the Finance Minister's suggestion?—A. What Mr. Fielding wanted was a cheque. He wanted the cash. On McArthur's contract we took deposit receipts. The amount involved was so large that he had trouble to get the money from the bank, and to help him, the Commission, although I dissented in the report, took deposit receipts, and Mr. Fielding did not like that. He said we should have got the cash, but if we had insisted on the cash, McArthur could not have taken the work at all, and that is one way of justifying my contention with my colleagues, that the Grand Trunk Pacific had the lowest figure. I am still of opinion that what Mr. Fielding was suggesting there could not change our position at all. Under Rule 17, I think, of the law, we were responsible for the security to be asked, and we took great care to avoid bogus tenders, and if I were Chairman I would do the same thing again to-day.

Q. Don't you think it might frighten off intending contractors?—A. No. They were all anxious to tender and we had no complaints about it. I have no knowledge of it doing that.

Q. Very few people tendered, though?—A. There are not very many in this country who can tender on a contract like that, and in doing that we were certainly avoiding trouble by having good contractors.

Q. I suggest to you, it might have been better to have had smaller contracts. —A. Smaller contracts would certainly bring trouble. The engineer was of opinion, and the government also, that in order to have the work done cheaply big contracts were necessary. A small contractor cannot do the work as cheaply as a big contractor, he cannot afford to buy the plant. But a big contractor can recoup himself for the cost of his plant because he has lots of work. The small contractor who has not the plant certainly cannot compete with the man who has a big plant.

Q. But these big contractors did not do the work. They sublet it to small people.—A. You could not prevent that. It is done every day with private companies. You cannot prevent that. And as long as the Government and the Commission were secured, that is all we had to do.

Q. Your idea was that a big contractor would have a big plant, but you knew that a big contractor would not do the work because it was not the practice?—A. We did not know that at first. Some of the contractors have kept a large stretch of work for themselves: others sublet. We were not in the confidence of the contractor; we did not know who was going to do the work and consequently we could not know in advance if they would sublet. For instance Hogan & Macdonell sublet fifty miles to O'Brien & McDougall. They were good subcontractors. We could not prevent that. We had sufficient security and we accepted the subcontractors in their place. Speaking generally, the subcontractors were certainly glad to make the money. Some lost money and some made money. Some did not have a plant of their own and they were glad to get the work.

Q. That is your explanation of why you did not follow Mr. Fielding's suggestion?—A. His suggestion was as a member of the Government. As a member of the Commission responsible to the people and the Government I was not inclined to follow it. I follow my own opinion in a case like that. I am sure of one thing; if the tenderers at that time had put up cash instead of deposit receipts Mr. Fielding would not have made any remark. He was looking for the cash.

Q. You received from McArthur three deposit receipts on the Traders' Bank in Toronto?—A. Yes.

Q. Acknowledging that the Traders Bank had received from the Commission in all some thirteen hundred thousand dollars. That is right, is it not?—A. I would like to see the deposit receipt. As far as the Fielding letter goes, I may add

this: we agreed with him about getting a certified cheque. We stopped the deposit receipt question but we did not amend the form of tender.

Q. Did it strike you that there might be some difficulty, if it ever became necessary, in collecting that money from the Traders' Bank?—A. In what way?

Q. You did not deposit any money with them?—A. The deposit receipt was money at the bank. They had at our credit there the sum of so much and the only thing was that we said they should not be responsible unless the contractors defaulted.

Q. If your banker were to write you a letter to-day, telling you he had $10,000 at your credit and he had not the money there, you could not get the money out of him in a lawsuit?—A. That is a matter of law, and I think the way receipts were made out the bank would have been liable if there had been any default on the part of the contractor.

Q. The bank did not agree to guarantee the contractor?—A. No, I think they acknowledged they had money in the bank at our credit.

Q. They knew that that was not true; they would say that you knew that was not true?—A. In business we could not argue like that.

Q. I think it is very serious?—A. I do not think so.

Q. You did not think anything of it?—A. Not at all, and as the contract was executed there was no harm done, anyway.

Q. I want to ask you about three contracts, Nos. 16 and 17, about Lake Nipigon. These two contracts which covered over two hundred miles grading are located due north of Lake Superior. Do you know where those are? They were let to M. P. and J. T. Davis?—A. Yes.

Q. You first advertised this work in July, 1908, and received a tender from the Grand Trunk Pacific to do it at cost, plus 10 per cent?—A. I refused that.

Q. You refused that. Did you advertise again?—A. We did later on.

Q. On September 12th, 1908 you advertised again?—A. Yes.

Q. You got two tenders: one from M. P. & J. T. Davis for $3,308,000 and one from the Grand Trunk Pacific for $3,402,000.?—A. Yes. In regard to the Grand Trunk Pacific, I do not think it was a plain tender.

Q. The second tender was an ordinary tender in the regular way. You awarded the contract to M. P. &. J. T. Davis?—A. They were the lowest tenderer.

Q. Yes, they were some $94,000 lower than the Grand Trunk Pacific. Why did you award that contract then?—A. Because it was the time to give it.

Q. For what reason—did you want them to start work on it?—A. Certainly. The Grand Trunk Pacific at that time was urging to have that contract given as soon as possible. It was at their request the tenders were asked.

Q. They wanted the work started as soon as possible?—A. Yes.

Q. The work was to be completed under the contract on December 31st, 1910?—A. I suppose so.

Q. No work was commenced on that until the 16th of January, 1910?—A. I guess so.

Q. And at the close of that year it was reported that 12.49 per cent was completed. Do you agree with that?—A. If that is the engineer's report, it speaks for itself.

Q. Work did not commence on contract No. 17 until March, 1911. So that one contract was let nearly a year and a half before work was commenced and the other was let two and half years before work was commenced. Is that right?—A. A. In what month?

Q. October 29th, 1908. Work commenced on 16th January, 1910, and on 17th of March, 1911?—A. Those contractors could not get their supplies on the spot.

Q. It took two and a half years?—A. I do not know about the time. They must have started work before that.

Q. Davis never did anything on the work at all?—A. I understand he sublet to O'Brien.

Q. Yes on September 29th, 1909, he sublet to O'Brien, and he has up to date received a profit on that of approximately $600,000 for doing nothing?—A. That is his own business. We lost nothing by it.

Q. I do not agree with you on that. I think you did?—A. In what way, I would like to know?

Q. O'Brien was a big contractor was he not?—A. Yes.

Q. He could take the work himself?—A. Why did he not bid?

Q. He could take the work?—A. O'Brien had the right to bid.

Q. The point is this: you let the work when it was inaccessible, and nobody started to work on it until the railway got up to the work?—A. Nearly all the contracts were let at a time when the work was not accessible.

Q. Now Mr. Hayes wrote to you and asked you to cancel that contract?—A. He did.

Q. He says in his letter of October 9th, 1909: "Dear Mr. Parent, I have yours of October 7th in regard to the contracts covering certain sections in Districts "D" and "E". You do not seem to cover the point to which I made reference. There is no question as to the regularity of the tenders at the time they were asked. The point I am making is that these tenders—as well as those made by other contractors—were all based on the work having to be taken up at once and completed within a certain time, thereby making necessary the taking in of the supplies overland at great expense. Several months have been allowed to pass without anything having been done by the contractors; in the meantime the work immediately adjoining the sections under discussion has been completed to an extent that will permit the bringing in of the supplies at a very much lesser price, meaning thereby a much greater profit to the contractor on the sections named, than if he had commenced work as was assumed he would be required to do when the contracts were let.

"What we are asking now is that since we are to pay the interest on the cost of this work, and the contractors having not been pushed, that new tenders should be asked and if this is done, the work could be let very much more reasonably than was the case in the first place at a saving to the Government and eventually to the Grand Trunk Pacific, which is to pay rental based on the cost.

"May I ask you what were the provisions in the contracts referred to as to the commencement of the work, and when was it to be completed, and what was the penalty for non-completion.

"Since commencing this letter, I have had laid on my desk clipping from the Montreal Gazette of October 9th, in reference to this very piece of work, and you will note it states that Fauquier Bros. will have 50 miles of steel laid on the Transcontinental west of Cochrane before winter sets in, and that 'this will enable supplies to be taken forward by rail over the T. & N. O. and the Transcontinental, leaving a "tote" of only 50 miles to the east end of the big M. P. Davis contract.' Of course, this will very much cheapen the cost of getting in the supplies, and unless the contract is revised and lower prices for the work obtained, it will correspondingly increase the profit to the contractors."

Why did you not act on that suggestion and cancel the contract?—A. You have my answer.

Q. Your answer is dated the 14th October, 1909.

"Dear Mr. Hayes:

"The essential point in your letter of Aug. 2nd to the Honourable the Premier, regarding certain contracts in districts 'D' and 'E' was a request that they should be cancelled. In my answer, I therefore endeavoured to show that, the award having been quite regular in every respect,—which you admit—such a step as was suggested would be illegal on the face of it.

"I noticed your contention that the prices were too high, but did not think necessary for the reason just given, to dwell at very great length on that side of the

question. Even granting the propriety of the ground taken, there is little doubt that it would not be sufficient before law to render void actions which were regularly performed.

"For the purpose of discussion, however, I am willing to go into particulars.

"Among other proofs that your Company had urged with us that the work referred to should be let at an early date, I shall quote from a letter written by Mr. Morse to the Honourable the Minister of Railways, on May 12th, 1908, which says: 'In order to give the Grand Trunk Pacific an outlet to the east through Northern Ontario, the contracts for the unlet portions of the line between Lake Superior Junction and the T. & N. O. Railway to be let without further delay, it being understood that the surveys are sufficiently advanced to permit this being done.'

"We complied with these wishes and contracts were signed on the 26th December of the same year. At such a late date in the season the contractors were unable to get their supplies, material and plant in soon enough to begin operations during the next season.

"Our forms of contract provide, it is true, that work be started at once and pursued diligently until completion, which in the present case is to take place on or before December 31st, 1910. Allowance must be made, as you know, for adverse conditions. I need only point out the fact that we have done so for more than one of your sub-contractors, namely the J. H. Reynolds Construction Company, who were so much behind in their work and gave us endless trouble. They were unable to carry out the undertaking and we had at one time to advance money to pay their men. Yet your company could not withdraw its contracts, although they were practically in default. There is surely much less cause and possibility to do so in the present instance where the facts are altogether different.

"Now we come to your statement that tenders were all based on the work having to be taken up at once and completed within a certain time. As supplies had to be taken overland at great expense, prices would naturally be high. Perhaps the work done on the adjoining section may reduce somewhat the cost to the contractors in one way, but the difference would not be as large as you claim. There will be still a considerable distance to cover by 'tote' roads, while haulage by rail through to the point of delivery is no small item, and this remains the same. Labour conditions, which you represented as favourable at the time, must have been taken into account by the tenderers. It is not likely that workingmen can be had to-day as cheaply as could be expected a year ago during the financial stringency.

"There is no certainty, therefore, that better prices than before could be obtained now if new tenders were to be called for. Any advantage that might be gained on one hand would be more than counterbalanced by the loss of time on the other, not to mention the liability incurred. It would take a year or more before another contractor could get down to work.

"We are told that preparations have been made to proceed actively with the work, and it can be expected that these two sections will be ready in good time.

"In any event there would be no way of complying with your suggestion, as stated before, unless the contractors would give their consent to the work being let anew, which, it seems, would be a most unusual course in business.

That is your answer?—A. Yes.

Q. That was in October, 1909, and Davis & Co. had sold the contract to O'Brien at that time?—A. They may have done so. Reports will show.

Q. Section 20 of the contract provides that if the contractor shall make default or delay in diligently continuing to execute or finance the work to the satisfaction of the engineer, and such default or delay shall continue over six days after notice in writing shall have been given, you can cancel the contract. You had it absolutely in your power to cancel the contract.

Q. And you agree, in that letter, that it might be let cheaper, and Davis was not going to do it.—A. I do not agree to that. I gave my reason in the letter. To try to cancel a contract like that would involve litigation.

Q. Why did you not make Davis get busy and go on with the work?—A. Well, I will tell you. The country has lost nothing by it. To my mind, the country has gained by the delay. If we had pushed that part or some other part, we should have had to pay interest on it and taken care of the line pending the operation of the whole line. For instance if Davis finished ahead of the others we could not use the line but we would have to pay interest on the money and take care of the line which would involve a large sum of money. So the country has lost no money.

Q. That being so clear, why on earth did you let the contract so early.—A. Because we were asked by the Government and the Grand Trunk to do so.

Q. Why did you not compel them to go ahead?—A. We did, but they are just like contractors for private companies. For instance if you let a contract to be completed within a certain time, I think you won't find one perhaps who will do the work in the time specified. They never do it in the time specified.

Q. Don't you think it was a great piece of folly to build the National Transcontinental end of that line before the West end was completed?—A. That is a matter of opinion. We were asked by the Grand Trunk Pacific to have the contract let, and as soon as the location was prepared we did so.

Q. You know that work has been completed down there for years, and is no use?—A. It has been completed.

Q. And it is no use yet?—A. If we had finished the Davis contract, which you were talking about just now, we should have been in the same position with that. In building that line, contractors had to meet a lot of difficulties. There was fire, in some cases, and they lost their supplies in others. They could not do any better. It is very easy to criticise an enterprise when it is over, but when you are meeting all the difficulties, that is the time to talk about it. It is easy to find fault with it when it is finished, and very unfair sometimes.

Q. I want to ask you, did you or any of your fellow Commissioners receive any money from any of the contractors?—A. Not that I know of.

Q. Neither for yourself nor for political purposes?—A. Not that I know of. Speaking for myself, I have been in public business for many years, and it has always been my duty to put public interest before private interest, here or elsewhere, and in this case, if I were to die to-day, I would say the same thing: that so far as I am concerned, I have been taking care of the public interest as much as possible. For my part, I would not give undue preference to anybody, contractor or otherwise, for money or other consideration.

Q. Did any contractor pay any sum of money to you or to any of your fellow Commissioners for personal or political purposes?—A. I do not know that.

Q. You say they did not.—A. Not to my knowledge.

Q. Did they pay any to you for personal or political purposes?—A. No.

Q. Did any of their friends pay money for them to you?—A. No.

Q. Do you know of their paying any money for personal or political purposes during the time they had this contract?—A. To me?

Q. To anybody.—A. Not that I know of. Those contracts were let on their merits, without any compromise or favour whatever.

Q. Did any of the contractors make any contributions for personal or political reasons, after they got the contracts?—A. Not that I know of. If they did, it must have been elsewhere.

Q. But not through you or with your knowledge?—A. No.

Q. Nor through you?—A. Certainly not. If it had been through me, I must have had the money.

Q. Did they pay it to any other person, at your suggestion?—A. Not at all.

Q. Do you know of their paying any money?—A. I cannot say that. I am speaking from my personal knowledge.

Q. Did they tell you they paid any other, money?—A. I won't tell that. I do not know that.

Q. Will you say they did not tell you they paid money?—A. I do not remember that.

Q. Try and remember.—A. If they paid money to somebody, it would be their business.

Q. Did they tell you they had paid any money to anybody during the time they had these contracts?—A. To anybody outside?

Q. Yes.—A. A fellow talks that way sometimes. He might say, I contribute to both sides of politics, to both parties, but without giving any name particularly.

Q. Did any of those contractors tell you, during the time they were doing this work, that they contributed any money for political purposes?—A. I do not remember that.

Q. You don't remember?—A. No.

Q. Will you try to remember?—A. If I knew, I would tell you. In a thing like that, I speak for myself. I cannot speak for anybody else, nor will I speak from hearsay.

Q. You do not remember their telling you so?—A. No. I always avoid politics.

Q. You say they never told you they put up any money for personal or political purposes?—A. I do not remember that. You think I know better than I do. We did not touch those matters. I had a duty to perform and I performed it.

Q. And you say now, candidly, you do not know of any case where any contractor put up money while he was contracting with this Commission?—A. I do not say they did not put up any money.

Q. But so far as you know?—A. So far as I know, they did not, to me.

Q. Do you know of their doing it?—A. To know it, I must have been with them when they did it.

Q. Oh no.—A. If they did, I was not with them.

Q. This is not the point. Did they tell you they did?—A. I do not remember that. They may have said so, I do not know. I do not remember it and I could not swear to it.

Q. Do you remember their telling you they were going to put up money?—A. That is about the same thing. They may have said so, some of them, but I could not point out exactly. They may have said so.

Q. Cannot you recall any case?—A. There were no special cases.

Q. Think it over now. Cannot you recall some case?—A. No. What case?

Q. Never mind just now.—A. Have you a case to point to?

Q. Just see if you cannot think of a case.—A. No. I cannot find a case.

Q. You mean to tell me that you cannot remember a single case during all the time you were Chairman of that Commission, where a contractor told you he paid money?—A. You must think of this. I never bothered myself with the contractors about a money question. My sole duty, as Chairman, was to see that the work was done in the public interest and according to the specification, and I would not have dared to speak to contractors about subscriptions or anything else.

Q. Did you ever speak to them?—A. I have had experience enough in politics not to bother with this question. If these things were done, they were done by outsiders, but not by those having the responsibility of the work. That is why I am not in a position to talk about them.

Q. Do you mean to tell me you were never curious to find out whether they had put up any money?—A. That would not be doing any good at all.

Q. But you never were curious enough to find out?—A. I am not very curious on those questions.

Q. Did you tried to find out?—A. No. I never tried to find out, because it would have been against my whole interest and duty to do so.

Q. And do you say you did not find out?—A. I did not look for it. I did not want to bother with it.

Q. I knew you did not want to bother with it, but sometimes when these men become generous they would likely want their generosity to be known to the proper people.—A. That is as old as Adam and Eve. You will find some thing like that on both sides of politics. We know very well both have their friends at election time, but this has not been done, so far as I know, by a party contracting with us. I would take it to be an offense to do it. That is why I would not touch a thing like that.

Q. Do you say you do not know anything about it?—A. Not personally.

Q. Anybody told you?—A. On that question I would not swear. I do not remember.

Q. You do not remember?—A. No, because so many things pass in election times that a fellow may say, well, I have given so much to this person and so much to that—not on this special question, but generally—and therefore, I would not take on me to swear on a thing like that.

Q. Was there anybody that you know of that got any money from the contractors for political or other purposes, during the time they had contracts for the Transcontinental Railway?—A. I answered that. I said no.

Q. Now your answers are without any mental reservation?—A. No mental reservation on my part.

Q. It is an absolutely frank statement?—A. A frank statement, so far as I know.

Q. I could not get a 'yes' out of you by putting the question in another form?—A. Put it any way you like. You will get the same answer.

Q. Now I want you to explain a matter down at Quebec. I think it is only fair that I should draw your attention to this. You know the Chevalier case down there?—A. In Cap Baleine.

Q. Yes, the ice house case. On the 1st of October, 1908, Alfred C. Dobell leased for three years, from May 1, 1909, to Adolphe Chevalier, a lot of land known as cadastral No. 2525 in Champlain Road. That is Cap Baleine, is it not?—A. Yes.

Q. Now, Chevalier says that a man named Bergevin came to him through a hotelman named O'Neill, and bought out from him in the summer or autumn, just before the general election in 1911, his lease for $4,000; and he reserved the right to occupy that land until the end of the lease. The notarial deed was executed before Joseph Allaire, notary public for the Province of Quebec, and it provides that Chevalier is to give him all his rights and interests of occupation, of a certain piece of land known as cadastral No. 2525. He is not to give up possession until the 1st of May next, when the lease runs out.—A. (After examining the deed and lease). Both are the same thing.

Q. Did Bergevin, under those deeds, receive any consideration for his $4,000?—A. I do not know about that.

Q. You ought to know. You are a lawyer.—A. But I have not studied the conditions enough to answer that.

Q. But under those deeds?—A. They speak for themselves.

Q. I have shown you the deed, and you can see by that deed, can you not, that Bergevin got nothing at all for his money?—A. I know nothing at all about that.

Q. I am asking you now to look at the deed from Dobell to Chevalier and the deed from Chevalier to Bergevin, and tell me, as a lawyer, whether Bergevin got anything for his $4,000. (handling deeds to witness). Generally they show Bergevin got nothing for something, and knew it when he took that deed.—A. I cannot say that.

Q. You know he did not get anything. The deed says he does not.—A. The deeds speak for themselves.

Q. Do the deeds say so?—A. I do not want to speak of a lease to which I am not a party.

Q. Am I not correct in stating that the lease from Dobell to Chevalier is for three years?—A. That will be for you to say in your report, whether correct or not.

Q. Now, won't you say to me whether I am correct or not: whether that is not a lease for three years from Dobell? · You have read both?—A. It looks like that. You asked me whether I knew Bergevin had got nothing

Q. Leave that out. Does not the deed to Bergevin provide that Chevalier shall occupy the land until the end of the lease?—A. It does, according to this, but there may be something else. This does not show he had very much, but he may have something else. I do not think a man is such a fool as to pay money for nothing.

Q. Under these two deeds he had nothing to sell, had he?—A. Not very much, judging by that alone.

Q. Now here is a deed to which you are a party yourself. In 1911, Bergevin received $4250 for a graving-dock. The deed I have in my hand is in French, but I will translate it. "Considering that it is necessary for the Transcontinental Railway to demolish, for purposes of their line of railway, the graving-dock belonging to the said Bergevin, situated on Lot 2525, and considering that Bergevin is ready, in consideration of a certain indemnity, to give up the said graving-dock, therefore, Bergevin accepts $4250.00 in full and final discharge of all damages resulting to him from the demolition of the said graving-dock." Now, why did you give him $4250? Your notary had all the papers before him?—A. That was built by Chevalier when he was a tenant of the property.

Q. Yes, but Chevalier did not sell that graving-dock to Bergevin. What did you want with the graving-dock?—A. The engineer wanted to cross that property, and we had to remove the graving-dock.

Q. Now, Chevalier's lease was up, and they had to remove their buildings. That is as plain as a pikestaff.—A. Not so plain as you think, because at that time I understand Chevalier could have got an extension of his lease, and so would not have had to remove that dock.

Q. But he could not get the lease if you chose to take the property. Dobell could not give him the lease.—A. We did not pay for the property itself, but as a place to build on.

Q. If you chose to expropriate that property, Dobell could not give him another lease?—A. Certainly not.

Q. You knew that. Now then, he would have to move that graving-dock, and he would not have any claim against you. You do not mean to tell me that you thought for one moment that that man had any claim for damages against the Transcontinental Railway for that graving-dock?—A. Why did the engineer and the right of way agent recommend it if it were not wanted?

Q. I do not care if all the men on earth recommended it. Any lawyer knows that that man had no claim.—A. You could not remove his house without paying for it, and moreover, I think it was used by our own men, who were picking borings in the river at that time.

Q. What do you say you paid that money for?—A. For what is specified on the voucher here, and approved correct by the right of way agent and the engineer. If I remember rightly, our men who were picking borings in the River St. Lawrence used that dock all summer.

Q. But that is not what you paid $4250.00 for.—A. I cannot say exactly, but if my memory is correct, I think we paid that money to use it.

Q. Chevalier say that everybody knows all about it, and he says that when he got this from Bergevin, Bergevin knew all about it. Now Bergevin, according to the law of Quebec, would have to produce the papers to show his title, and his papers show no title. Is not that true?—A. I cannot say as to that. If I remember the facts, the graving-dock was bought and used by the Commission during the whole summer.

Q. Is that all the explanation you want to make about it?—A. So far as my memory is concerned, but we would never have bought it if our men had not thought it was worth that amount. I did nothing to Bergevin or Chevalier, and they did nothing to me. I have no interest in the property at all.

Q. This transaction was made with you, yourself, and I cannot understand how any lawyer would put that deal through?—A. The certificate of the right-of-way agent is there, and the matter was fully discussed with those fellows, and they agreed to pay that amount of money. I would not have paid that amount of money if I thought it incorrect.

Q. But the point I am trying to impress on you is this: that this man's tenancy had expired, that he had no claim whatever against anybody, that he must remove his things or leave them there, and he had no claim on earth against the Commission, and I want you to explain to me how he got that money?—A. He got that money because we bought the thing. It was valued by our right-of-way agent and engineer at Quebec. We were satisfied it was correct, and we bought it.

Q. You say Bergevin bought this tenancy from Chevalier and never mentioned anything about the graving-dock in the deed, and he professed to give $4,000.00 for what he knew, if he read his deed, was nothing at all?—A. So far as I am concerned, I had nothing at all to do with these matters.

Q. But the notary did?—A. Yes, but it went to our engineer's office.

Q. No. Bergevin and Chevalier say it went through you?—A. Did they know what was going through me and my office?

Q. They say they came to you personally?—A. They came to me personally, but it was referred to our engineer's office.

Q. No, no. It was referred to the notary?—A. Not at all. You find, on the voucher, the certificate of the real estate agent.

Q. That certificate of the real estate agent shows this: Mr. Tremblay says that the voucher means that the statement is wrong, but the voucher is in conformity with what is intended in the deed. He says that voucher only means the amount that is stated in the deed?—A. It does not mean that to me. When a real estate agent certifies an account as being correct, he does so because he has put his valuation on.

Q. Supposing he did put a valuation on. How could that make you responsible? You might send him out and tell him to value anything, but that is no reason why you should buy it?—A. I do not ask any man to value anything. He has to notify me. I say if we want something, it is for him to certify the value of what we want.

Q. What was the duty of the notary? To see that there was a proper title and to see the deeds?—A. I never studied those deeds. We were discussing the value of the graving-dock at the time, and if I am not mistaken, we have used that thing, but I am not sure about it. But surely we would not have bought that if it had not been valued by our own men in Quebec.

Q. There was another man named Martineau in exactly the same position. He had a lease of part of the land from Chevalier, and he had an ice house on it?—A. Yes.

Q. Martineau sold out to Bergevin his right to occupy the premises under his lease. It was agreed that Martineau could remain in possession until the lease expired. Bergevin paid him, as appears by the deed dated the 18th of August, 1911, $2,000.00 for nothing. Did he get anything for his money? I will show you the deed. (Deed handed to witness.)—A. This is not our own deed.

Q. It is the deed to Bergevin. You can see there he did not get anything for his money?—A. In this case, it was only the sale of an ice house.

Q. The ice house is not sold there, is it?—A. Yes. They were selling the ice house.

Q. I did not see the sale of an ice house in that. Will you point it out to me?—A. Here it is (indicating).

Q. Oh yes. Bergevin bought that ice house?—A. The deed shows.

Q. And he would have to move out at the end of the lease if he wanted it, would he not?—A. Well, it would be a question between him and the landlord.

Q. If the lease came to an end, he would have to move it if he wanted it?—A. If there was no renewal.

Q. Yes. If you expropriated the land, he could not get a renewal?—A. Not a renewal, but he could have remained there a few months more.

Q. But he could not have got any damages out of you?—A. No.

Q. And therefore, when he got $2,500.00 for damages, he got it for nothing?—A. It might be for damages alone, it might be for the building, also.

Q. It does not say for the building. It seems to me that you ought to pay that money back to the Commission.—A. It is a question of having value for the money.

Q. I cannot see where they got any. I would like you to explain it, because it is a transaction that needs explaining?—A. For my part, the transaction was bona fide. So far as we are concerned, I say frankly we never received anything at all either directly or indirectly from any of these parties.

Q. They say it is an election transaction. They swore to it. Chevalier says he did not sell anything, and it was just a cloak to give him money for the elections?—A. Did he?

Q. He swore to it?—A. If he did swear, I am swearing too, now, that I do not know anything about it, neither from Bergevin nor Chevalier. This was made after the election, was it not?

Q. No. It was made before the election?—A. No. It was after the election.

Q. Bergevin is a man of intelligence, is he not?—A. I suppose he is.

Q. A business man?—A. Yes.

Q. And he has large property in Quebec?—A. Yes. He has some there.

Q. And he is not a shipwright?—A. I do not think Bergevin got a cent for election purposes. I will be more than surprised if he subscribed to the elections, and as far as we are concerned, there was no election in the business.

Q. It is my duty to tell you what they say, because there is the evidence?—A. What did Bergevin say?

Q. Oh, he denied it, but he could not make any decent explanation of it?—A. We never paid any money to Chevalier.

Q. You know everybody in Quebec is talking about it?—A. They can talk as much as they like.

Q. I would like to see it explained, because it seems to me it needs explaining. Bergevin said what he bought from Chevalier was bought by him to sell to the Commission. That is his evidence. Listen:—

"A. (Bergevin) Well, I do not say that I do not know. I was buying them to sell to the Commission.

"Q. You knew the Transcontinental would pay you that money for it?—A. Yes.

"Q. What did you know?—A. I knew I could sell the property to the Transcontinental Railway. The way to prove to you that what you say is not correct—because some I sold at $259 profit. I was pretty sure I could sell it to the Transcontinental Railway."

Now, so far as I can see, Bergevin got nothing for his money. Chevalier had no claim for damages, and the Commission got nothing for its money. If you can explain to me where I am wrong, I will be delighted to hear it?—A. I cannot explain to you the value put on those properties. I never saw those deeds. They were supposed to go to the notary, and he handled them in due course. The property was valued by our own officers. So far as I am concerned, I never went there myself. The real estate agent was supposed to satisfy himself that that was correct.

Q. Your notary, then, has to bear the blame of putting through that transaction?—A. There is something in that. I cannot say whether the amount is correct or not. If the graving-dock or the ice house or whatever it is was bought too high, I am not prepared to admit it. I do not see those things myself, but I

never did a thing unless my right-of-way agents had certified or recommended it. I relied upon this man, who is supposed to be honest and perfectly honourable, and when such a man certifies a thing to be correct and comes to me like that, from the Quebec office, it is supposed to be correct.

Q. Did you know yourself—you ought to know, I should think—that that was something which the Transcontinental ought not to buy at all and did not have any use for?—A. It was not the way to do it. The Government would never dare to go on or go through a property because a lease had expired or was on the eve of expiring, and pay nothing at all for it. I know that although Bergevin's lease might have expired, he would have got some little time.

Q. Mr. Dobell swears he had given him notice. Chevalier swears he had got notice. Chevalier says he told Bergevin he had no right to stay on there any more. —A. When they came to me they said the lease had three more years to run. There was a building on the property and they were asking so much for it, (I have claims, if I remember right, up to $5,000 and $7,000). The matter was referred to Mr. Tremblay and to Mr. Doucet. Tremblay, later on, recommended that amount of money and the thing was put in the notary's hands, but I never saw anything of those deeds.

Q. Did you think you were buying the lease?—A. Certainly. At the time they came to me there was supposed to be an unexpired time of lease.

Q. The deed shows you did not buy the lease?—A. The deed was not before me. I suppose the notary was looking after that.

Q. You signed the deed yourself?—A. I signed this, and it was supposed we were buying something.

Q. It did not show you were buying any lease?—A. This one was for an ice house.

Q. What did you intend to do with the ice house and graving dock?—A. I do not know.

Q. But you did not buy the ice house?—A. Yes, we did.

Q. You were giving this man $2,500 for moving an ice house which he had to move himself?—A. But we bought the ice house.

Q. Oh no, you didn't, and you didn't buy the graving dock—the demolition of them, I think, but you did not buy either of them?—A. The demolition is about the same thing.

Q. They moved the graving dock over to Orleans Island?—A. I did not follow that. We bought the property to get the right to demolish it.

Q. Knowing he was to demolish it himself?—A. We were buying it for that.

Q. You were giving him the money for the expense of demolishing the ice house?—A. We were buying the ice house because it was to be demolished.

Q. I do not see it in there (indicating)?—A. We had to demolish it.

Q. To move it off?—A. Yes, or demolish it.

Q. You had a very eminent Ontario lawyer, Mr. Taschereau?—A. He is supposed to be.

Q. Then you had a solicitor. You had a lawyer to examine the title and a notary to put through the deeds, both of the name of Taschereau. The lawyer is the Minister of Crown Lands for Quebec, is he not?—A. The Minister of Public Works.

Q. And did he certify there was a title to that?—A. I did not say that. I see his brother signed the deed.

Q. Well, his brother had all the papers before him?—A. He was supposed to have, and it was his duty to have them.

Q. And you signed the deed before the brother?—A. All the deeds in Quebec are on the minutes.

Q. It is not. I would like to see it explained?—A. I have given you my explanation. It was a bona-fide transaction like the rest, so far as I am concerned. It went through our office in Quebec and we paid lots of money there. I never

saw the place myself. I am most surprised to hear you state that too high a price was paid. I never put a valuation on the building myself. There is no politics attached to it.

Q. Do you understand the transaction?—A. I understand it as it is now. I signed, that is all.

Q. Here is what Bergevin says about it himself:—

"Q. Your deed says that that was for damages for removing the slip?—A. Yes.

"Q. So that you got $4,250 for nothing?—A. Why?

"Q. Because you did not own the slip.—A. No, but I bought the right from the 1st of September to the 1st of May. That is what I sold them. I could not have sold them anything that did not belong to me.

"Q. But you did not sell them anything?—A. No.

"Q. According to your own deed, you sold something which you did not own?—A. No. I did not sell them anything which did not belong to me.

"Q. But did you own the Bassin de Radoub?—A. No. I owned only the right, as I explained.

"Q. You did not own the Bassin de Radoub?—A. No, only the right to the 1st of May.

"Q. You knew quite well you did not own the Bassin de Radoub?—A. I did not buy any property.

Q. Why did you sign the deed and say in that deed that you owned it? (Deed shown to the witness) Now, be honest about this. Did you not give that man that money and then find yourself in trouble after the election and get your money back at this date?—A. No.

Q. Yes you did. You got it on the 16th of October.—A. Yes, but that transaction was made before the election.

Q. The transaction with whom?—A. The Transcontinental Railway.

Q. With whom did you make it?—A. Mr. Parent.

Q. He is a lawyer?—A. Yes.

Q. And a very distinguished lawyer?—A. White puts him before the Ontario Taschereau.

Q. And you made the bargain with Mr. Parent himself?—A. Yes.

Q. And he agreed to give you $4,250 of Transcontinental money for destroying the Bassin de Radoub?—A. Yes.

Q. And you knew you did not own it?—A. For the right I had there.

Q. For the Bassin de Radoub?—A. No. That was for the demolition of it.

Q. What was your bargain with Parent?—A. $4,250, the way the deed says there.

Q. For the demolition of the Bassin de Radoub?—A. No.

Q. Tell me the bargain. What did you say to Parent?—A. I told him, I will sell what I have there made with Chevalier, and that is all. I produced my contract with Chevalier, and that was the arrangement. I would get $4,250 for the thing.

Q. Did he write it?—A. Yes, and the notary too.

Q. Did Parent go to the notary with you?—A. No. Mr. Tremblay would not bother me, but I gave them the papers and they went to the notary with it.

Q. Did Mr. Parent give Tremblay instructions?—A. Yes.

Q. In your presence?—A. Yes, to send the papers to Taschereau.

Q. Did Mr. Parent get the deed from Chevalier?—A. Yes. He must have given it to him, because he had it in his hand.

Q. When did he make the bargain with you and Parent?—A. I cannot tell you, but it was a week or so before the election."

Now, there he says very plainly that you knew all about it.—A. I never saw those deeds. I referred the whole thing to Mr. Tremblay, as I did other things.

There were no exceptions made in the case of Bergevin or other fellows. Tremblay was the man to look after those things, and he was satisfied to pay a sum of money, that was all I knew about it.

Further on he says this:

"Q. To go back to the Martineau ice house. You bought the ice house from Martineau for $2,000?—A. Yes.

Q. You did not sell the ice house to the Commission. You only were paid by the Commission compensation for the removal of the ice house, and damages to cadastral No. 2525, $3,700, according to your receipt. That is correct, is it not?—A. Yes.

Q. So that you removed the ice house?—A. Yes.

Q. And the Commission was giving you $3,700. for the expense of moving it?—A. Yes, to take it away from them.

Q. Don't you think that was a pretty tall price for removing the ice house?—A. I do not know. You can judge of that.

Q. I am asking you?—A. I sold for what I thought I could. If I could have sold it for more, I would have.

Q. With whom did you make the bargain?—A. With the Transcontinental.

Q. With Mr. Parent personally?—A. Yes.

Q. He agreed that you should take the ice house away?—A. Yes.

Q. And they would pay you $3700. for taking it away?—A. Yes.

Q. No doubt about that?—A. No."

Now, they put it right up to you.—A. Well, the facts are as I told you. Our own men are responsible for the valuation of those things, not myself. I never was in any of these things. I do not settle a thing like that unless it goes through in the regular way.

Q. But you must have known that this man had no claim whatever against the Transcontinental Railway, no matter who valued it?—A. If I had known he had no claim, do you think I would have signed the deed?

Q. I would not think that you would sign the deed?—A. I signed it because the certificate of our real estate agent was there on the voucher and I supposed it to be correct. Mr. Tremblay was satisfied the amount was correct.

Q. But Mr. Tremblay would not know whether the Commission was liable or not?—A. He is supposed to know. If our plans show that the line has to go through certain property and he finds that property belonging to Bergevin or somebody else, and he finds out that so much money is required for the removal or demolition of that property, and says, I will recommend the payment of so much, I would assume that to be correct. I will say this: that nothing, directly or indirectly, has been paid by Bergevin, Chevalier, or anybody else, on account of this deal. There was no election business in it. There was not a cent paid, to my knowledge. I never heard anything about it, and I am pretty sure that Bergevin had not spent a cent on the election, on account of these exactions. I never had any. I never expect to get money from any of those fellows. I never deal in that way with anybody. If that thing is too high, the ice house, the Bassin de Radoub, or whatever it is—I do not admit it—but if it so, Tremblay and the notary and the real estate agent are responsible for it because they deceived us by certifying an amount which is not correct. For my own part, to be perfectly frank, under the same conditions I would repeat the deal again to-day, having confidence in my agent. Tremblay was a man of great honesty. He was as good a man as you could get, a good land surveyor with good judgment, and when I found his certificate on a document I had no doubts about it.

Q. Mr. Tremblay struck me as an extremely conscientious, honest man.—A. He is too. I never put through any deal in Quebec without going to see him.

I always referred them to Tremblay and Tremblay would come back and say: Compromise the thing or pay so much, and we would do it.

Q. But Tremblay says he did not do it? A. For my part, I never did anything unless Tremblay certified it. There is the voucher showing he certified it.

Q. He says that the account showed the amount mentioned in the deed? —A. Of course, but the amount was fixed by him.

Q. He says not.—A. I say yes.

Q. Bergevin says not too?—A. Bergevin was not there when I dealt with my real estate agent. The man does not stay there all the time.

Q. Bergevin says he fixed the amount with you?—A. Of course, I knew how far Tremblay was prepared to go. but when Bergevin came back to the office we did not close the deal in the first instance. I knew how far Tremblay was prepared to go, and we agreed on it.

Q. I think it is only fair to you to read you this portion of the evidence:

"Q. Who gave you your instructions?—A. The President.

Q. Mr. Parent?—A. Yes.

Q. What did he tell you in respect to this transaction?—A. Of course, I did quite a lot of things, and I do not remember exactly what was done in respect to that particular case, but if I remember right I think Mr. Bergevin came in to see Mr. Parent when he was here; and I was called into the office here and a discussion took place between Mr. Bergevin and Mr. Parent as to what he should get for the property he had to sell to the Transcontinental, and it was agreed—we sold at the valuation that was made by the valuators, and it was agreed that the transaction should be made at the price as made by the valuators.

Q. That is, that all the properties that Bergevin sold to the Commission should be at the valuation made by the valuators.—A. Yes. That was for this transaction, and further than that, I had instructions from Mr. Doucet to make all the transactions for the price given by the valuators, with all those landowners that would be ready to settle with the Transcontinental Railway, whose property had been valued."

I think that is all I want to ask Mr. Parent.

Mr. Parent: I never concluded any of these transactions for damages unless they had been discussed beforehand and agreed to by the agent or the engineer. Sometimes they would come into my office, discussing matters and then come back another day, and I would discuss it with the real estate agent or engineer. I had not the least interest in that matter directly or indirectly. I want to go a step further. Bergevin says that Tremblay went to the notary with the deed. That shows that Tremblay was supposed to know all about it.

By Mr. Gutelius:

Q. This railroad has been a very expensive one, and it is supposed to be a very high class road. Who designed this railroad? Was it the Commission or was it the Government?—A. It is an expensive road because the law says we were to take the outline into consideration, bridging, curves, etc., and because the standard of the road is high. When I became Chairman, the specification had already been made by, I think Mr. Butler, who was then second chief engineer, and by the chief engineer, Mr. Lumsden. The plans were supposed to be approved by the engineer and the Board of the Grand Trunk Pacific.

Q. Do I understand you correctly, then, to say that so far as you personally are concerned, or the Board, after you became Chairman, had no responsibility for fixing the standard of the road?—A. When I came in as Chairman, the standard

of the road had been settled on and the specifications made, and my duty and the duty of the Board under me was to build the road according to the design and specifications already made. Standard means the class of road: four tenths one way and six tenths the other. I do not think there is anything in the specification which mentions four tenths and six tenths.

Q. Was that settled before you came in?—A. I cannot say whether it was or not. I know the specifications were.

Q. Although the curvature and the gradients were settled before you took charge of the Commission, the question of the construction of wooden trestles, had not been settled. Why did you not use wooden trestles, in the interest of economy, in the construction of this railway?—A. I am not an engineer, but I think any engineer will admit that steel bridges are better than wooden trestles, because, in the first place, they are permanent, and in case of fire it would be disastrous to have wooden trestles on the line. Further, if you take into consideration the cost of lumber, at tender prices, and the cost of filling for wooden trestles, you would come to the conclusion that steel bridges, in the end, are cheaper.

Q. Did you ever have the engineers make comparative estimates for you to prove what you have just suggested?—A. We discussed matters more than once, especially when an offer was made by the Grand Trunk Pacific to build wooden trestles, and for them to do the filling afterwards at so much per yard. At that time we discussed the matter thoroughly and came to the conclusion that it would not be worth while to make a change, in view of the fact that we were building a first class road, and that besides the Grand Trunk had nothing for the filling and we should have had to have the consent of the main contractor. We thought it better to refuse their offer and finish the road at once with steel bridges and make it permanent.

Q. If you had been advised, in the early stages, of the construction of the railway, that you could have saved $7,000,000, do you think you would have come to the same conclusion?—A. In a case of that kind, I would have gone a step further and submitted it to the Grand Trunk and the Government.

Q. It would have made you perk up your ears?—A. If our chief engineer had put the question, say, in a special report, as you have put it to-day, that there would be a big saving in wooden trestles, then it would have been our duty to submit it to the parties interested. When we thought we could save a few million dollars in La Tuque, we did it.

Q. I do not find that you were ever advised of the money involved?—A. The specifications were approved beforehand by the Government and the Grand Trunk Pacific, that was before I came on. It was modified, perhaps, a few times afterwards, about twice or something like that, but the specifications could not be changed by the Chairman or mod fied by our Board, neither by the Government alone, but only by the common consent of the Grand Trunk Pacific and the Government. If we had undertaken, ourselves, to modify the specifications, we should have been doing something illegal and might perhaps have been thrown out.

Q. The specification did not say anything about wooden trestles or steel bridges?—A. Oh no. I do not think so.

Q. In the matter of using new eighty pound steel in sidings, if you had known that by purchasing lighter rails you could have saved $300,000, would you, with the Grand Trunk Pacific's concurrence, have undertaken that?—A. That matter was taken up once by Mr. Morse, and he said, I remember well, that perhaps they would save some money on the sidings, but in order to make it a uniform road, they would not object to having the 80 lb. rails in the sidings, the same as the main line.

Q. So that you let it go through?—A. So at this point we let it go through. We had trouble about getting rails. We had to wait sometimes for months and months after the contract was let.

Q. But if you had known you could save that amount, and if it had been satisfactory to the Grand Trunk, you would have, in the interests of economy, used lighter rails, would you not?—A. If the rails are all of the same standard and

weight, it is very easy to change them. That is one advantage of having a uniform weight. At that time, Billings seemed to object to 80 lb. rails. About wooden trestles, I want to be fair on that point. Considering the fact that we asked for prices for tender from contractors, I have my doubts whether, taking tender prices, you could save $7,000,000, as compared with steel bridges, but of course, assuming for a moment that you could get timber at prices lower than we have now, you might be able to save a large amount. But I have my doubts, when I consider the tender prices, whether wooden trestles would have made such a difference in the cost of construction.

Q. That is only your opinion?—A. Certainly. I am not an engineer. The transportation of timber is a great factor in construction. The distance and the place it is to be put have all to be considered. To build a railway in some places would be very cheap, but in building a trestle at a long distance, and where there is no railway communication, the transportation alone might sometimes cost much more than the material. That is where the trouble comes in and the expenditure increases.

Q. $45.00 to $50.00 a thousand was the average, was it not?—A. I do not think so. I think the average was over $60.00.

MR. LYNCH-STAUNTON: I do not think so.

MR. PARENT: I did not make any calculations, but that was my impression. Although I am not an engineer, when I was Chairman of the Board I used to figure out for myself at night, to help me along. They have tried to get an engineer at the head of this Commission. It is a matter of opinion whether he would be any better than a business man. Unless you could get an ideal engineer, his plans might be often worse.

Q. Was the payment of $350,000.00 to the Grand Trunk Pacific for surveys made with your approval?—A. It was before my time.

Q. How did you happen to build double track between Cap Rouge and St. Foye, and between Transcona and Winnipeg, and provide for double track over the Little Sturgeon River near Graham, when the Act seems to call only for a single track railroad?—A. They are not double track; they are terminal facilities. At Cap Rouge there will be more than two tracks. No railway can do without terminal facilities. You have to have them whether you are going to Winnipeg or Quebec, and we do not consider them as double track at all, or that we are going against the law in providing them, because it was required and approved by the Grand Trunk Pacific and the Government. What could you do in a city like Winnipeg or Quebec, with a single track? You have to accomodate the cars coming in and going out. Take the C. P. R. in Winnipeg, for instance. I think their yards are over thirty miles long.

Q. They are only building their second track now?—A. But they have lots of tracks into Winnipeg and in the yards. In regard to Quebec, the Government assume the obligation of the Quebec Bridge Company, which called for more than one track, and we had to carry out that obligation. When the bridge collapsed, the Government took it over and assumed all the obligations. The Quebec Bridge Company was going into Champlain Market in Quebec, and they were to build four tracks or more and a station there. That is why, I suppose, there is more than one rail from Cap Rouge to Quebec.

Q. At the Winnipeg terminals, when you made that agreement with the Canadian Northern, why did you not extend the terminal so as to connect up with the Transcontinental at Dundee Junction?—A. At that time Winnipeg was supposed to be their terminus. Going further on was a matter for discussion afterwards. Dundee Junction was on the Canadian Northern, and at that time the chief engineer never suggested anything else than what we had at first supposed.

By Mr. Lynch-Staunton:

Q. Why did you not bring the terminal yards at all events down to the banks of the river?—A. We were not asked to do that.

Q. Were you actively engaged, personally, in making the terminal agreement with the Grand Trunk Pacific and the Canadian Northern in Winnipeg?—A. Certainly. The Board had a long discussion with the Canadian Northern on that matter, and the Grand Trunk Pacific people were also often met. I have many recollections of the first deed they made, before it went to the House for approval. On one occasion they sent for Mr. Lash, their lawyer, who was in New York, because they objected to something in the deed, and they wanted to find out if we were correct. It was approved of and sent to the House for approval.

By Mr. Gutelius:

Q. It looks as though the Canadian Northern were in a position to extend the terminal from the passenger station down to Dundee Junction, if the other parties to the agreement had insisted on it?—A. It was not discussed at that time.

Q. You did not think of it at that time?—A. No. The point was not raised at that time. The matter came up afterwards when they modified the line in Winnipeg.

By Mr. Lynch-Staunton:

Q. I want to ask you about the Transcona shops. Your first intention was to spend $1,500,000 there. That was the estimate of Mr. Lumsden?—A. Yes.

Q. I am told by Mr. McIsaac, and I think by Mr. Calvert, that the reason the shops were made so much bigger and so much more money was spent on them was because there was an understanding with the Grand Trunk Pacific that those shops should be used not only for the Eastern but for the Western division as well. Is that right?—A. No.

Q. It is not so?—A. No.

Q. And that the Grand Trunk should pay a rental for whatever use they made of those shops for the Western division.—A. I do not think it was so.

Q. Nothing of the kind?—A. Nothing of the kind. We built those shops for the Eastern division and we had no right to do anything else. We could have made an agreement for the Western division, but the shops were essential for the Eastern division. I do not know any railway company of any importance that has not got its own shops, and we started to build shops for repairing locomotives. Afterwards we were asked to build repairing car shops, coaches, and so on; and we made provision for that later. At first they were asking us to build more than that. Morse had very big plans for constructing car building shops, and I said, we cannot do that, all we can do is to get shops to repair cars and locomotives, you cannot have shops to build cars, but only to repair them. They were not satisfied with what we had done. They thought we should have got much larger shops for locomotives and also for building cars. Incidentally, I presume that when the Grand Trunk Pacific has finished the Eastern division, they will take control of and operate the Western division. Nothing will prevent them repairing their cars in the Transcona shops.

Q. Will you tell me why it is that when they agreed to supply the rolling stock and keep it in repair at their own expense, the Government supplied them tools and machinery for doing it?—A. The law says so.

Q. No.—A. If you read Sections 14 and 15 you will find something to that effect. They are only bound to furnish their rolling stock.

Q. They are bound to maintain the line themselves?—A. You will find out there is a reserve by which the Government has the right to make permanent improvements, even during the lease, to be charged up to capital account.

Q. Shops are not mentioned once, for the Eastern division.—A. Terminal facilities includes everything. We had the right, by law.

Q. You have not to provide terminal facilities, only land for terminal facilities. Accommodation only means holes through the tracks, and things of that sort.—A. The general opinion of the law is that you have to build shops. They are only, bound, themselves, to build rolling stock.

Q. My opinion is that you should not have built the shops at all, but you built shops there that you could make anything in. You will not find any shops mentioned in that agreement at all?—A. If the Government was operating the line, they would require shops.

Q. So they would, and they would require cars too?—A. Of course, there is a clause (No. 47 I think it is) modifying the Act. You seem to doubt whether we could build shops. We discussed it at the time with the Minister of Justice and members of the Government, and we came to the conclusion that we were bound to build the shops. That is why we did it. They referred the matter to Sir William White, but whatever Clause 47 says is binding on everybody.

By Mr. Gutelius:

Q. With reference to letting the contract, District F, to McArthur. When the tenders were received, it was found that McArthur's tender contained a great many blank spaces for prices, which required that they be filled in or that his tender be thrown out. Mr. Lumsden tells us that he filled those prices in with the knowledge and consent of yourself. Do you remember that transaction?—A. No, because at the time I had protested against it.

Q. You had protested against it at that time?—A. Yes, at that period, and he explained that it was necessary to put in the prices to make it a bona fide tender. I was, as I said before, against those tenders, against McArthur's and all the others.

Q. Now stay with the red figures. Did you finally agree to let the red figures that were put there go in?—A. The chief engineer did not ask me to do it. At that time I was a new man to him, and he was more familiar with the other Commissioners than myself. Mr. Reid and Mr. Young were before me and I was a comparatively new man. He said it was perfectly regular to do that for everybody.

Q. Did it strike you as though it were not regular?—A. I just asked for an explanation about it and he satisfied me it was the right thing to do, and I thought, at the time, that being the lowest, the Government perhaps gave the contract to the Grand Trunk Pacific at McArthur's prices.

Q. Suppose it had been pointed out to you that McArthur was not the lowest tenderer excepting for those red ink figures. Would you have taken any firmer stand in connection with putting them in?—A. Then he would not have been the lowest tenderer.

By Mr. Lynch-Staunton:

Q. You would have got rid of him if you had not put those figures in?—A. I was against them all the time, but you have to rely on your engineer. MacPherson made the figures, I think. Lumsden didn't.

Q. He signed the paper, though.—A. But MacPherson is the guilty party.

By Mr. Gutelius:

Q. But you all knew of it?—A. I did not know of it at all.

Q. You knew they had put those red ink figures in?—A. Afterwards.

Q. But you did not know at that time that the red ink figures gave McArthur the contract?—A. Oh, certainly not. If what you are telling me now is correct, that but for those figures McArthur would not have been the lowest tenderer, I would not have accepted him.

Q. Well, it happens that if those red ink figures had not been put in, the contract would have been given to the Pacific Construction Company and the Government would have saved $400,000 on the final estimates?—A. My report was in favour of the Grand Trunk Pacific.

Q. This is the Pacific Construction Company, Fauquier's, I think. You did not know anything about this at that time?—A. Not at all.

Q. And if you had been advised that the red ink figures filled in here meant that McArthur was getting the work for which he was the second lowest tenderer, you would have made a row about it?—A. I was, at that time, making a row, by objecting to this tender.

Q. That was on general principles, and not on this detail?—A. No, but I would have taken action to have these contracts rejected. If I had known that it would have supported me in my position.

Q. You would have taken advantage of that?—A. Yes.

Q. Now in the printed specification, you include on Page 4 engine houses and section houses, but you do not show prices for engine houses or section houses in the description of the work to be done?—A. No.

Q. Your personal attention was called to that by your secretary, Mr. Ryan, in a letter dated January 25, 1906, in which he says: "I cannot find, in our schedule of prices, items calling for prices for buildings such as depots, section houses, shops and round houses," but you continued to let those words remain in all the subsequent specifications, and as a result paid for those engine houses about twice as much as, in our judgment, they would have cost if you had let the contract for engine houses separately. What defence have you to offer for that?—A. I have no defence, because I think we were right.

Q. You think you were right in letting a contract for buildings that would have cost over $100,000 and not asking for prices?—A. You could not, at that time, put an initial price on an engine house, because you could not tell where it was to be built and what kind of plan it would be built on; and at the same time we thought that the contractor who had the main contract could do that work later on at prices agreed on by our engineers, with the help of the Grand Trunk Pacific engineer, and thereby get better conditions. I do not think, today, any man can say we could have built them for less money than we have, unless by calling for tenders. I think we did right, and if I were there to-day I would do the same thing again.

Q. You will be surprised then to know that one at least of these engine houses was sub-let by the original contractor, and in his evidence he told us he made $50,000 on that building?—A. You might have paid just as much if it had been otherwise, because your own contractor had the advantage of his line, over which to transport his material and supplies, and I presume he makes money by furnishing all these things to the subcontractors, and that is where a big portion of the profit would come in, but another man could not do it. When a man has not the difficulty of transportation, that helps him to make money; and as I said a minute ago, all those contracts have been given through MacPherson, generally speaking, fixing prices with the contractor and the chief engineer of the Grand Trunk Pacific, and if they are not good judges of what they have done, it is their fault. Our engineers were supposed to be good men who knew what they were doing.

Q. But their hands were tied when the contractor knew he had to build the houses, and that you had to pay such prices as he demanded?—A. We never consented to agree to the prices they demanded. They have, of course, brought down figures a good deal. On a couple of occasions they came to me and I said they had to agree to the engineers' prices, and they were forced to take them too.

Q. Now, in connection with the La Tuque pusher grade. Your engineers recommended that 3½ miles of .65 grade, constructed immediately west of La Tuque, instead of four tenths, would have saved the Commission about $500,000. You recommended to the Government that you would be permitted to construct this steeper grade at that point, did you not?—A. We did.

Q. You took the matter up with Mr Hayes of the Grand Trunk Pacific?—A. Yes.

Q. And he was willing that you build it, was he not?—A. You have his letter on record. The tenor of his letter left the thing open, and I thought, in a way, it would be just as well to have a four tenths grade all along, but did not object. At the same time, he was satisfied to submit to the Government view.

Q. The argument that he gave, for building it four tenths, reads as follows: "In my opinion, however, the Commission should carefully consider the effect upon the minds of the public, regarding the Transcontinental Railway, which has been widely advertised as being the only low grade line from the Atlantic to the Pacific, with the definite statement to the effect that the maximum limited would be limited to four tenths of one per cent east of the Rocky Mountains." You remember that clause in his letter, do you not?—A. Yes.

Q. That seems to be, to you, the real reason that you have advertised the line as being a four tenths?—A. Yes.

Q. Then the Government instructed you, did they not, to build four tenths?—A. Yes. After that I saw Mr. Hayes. He came up to Ottawa and told me he would prefer to get a uniform line, although it would cost more. It was on that we made no recommendation.

Q. The Government decided not to approve any pusher grades in the line between Quebec and Winnipeg?—A. Yes.

Q. And on account of that decision you refused to consider the opportunity to save $240,000 by introducing a pusher grade east of the Chaudiere. You remember Mr. Lumsden wrote to you about it and said in his letter that in view of the La Tuque decision he did not suppose there was any use in taking it up with the Government?—A. He was right too.

Q. And that had the effect on the minds of the Commissioners and the engineers?—A. We made up our minds that it would be a four tenths, regardless of cost.

Q. And that the Grand Trunk Pacific would agree?—A. Yes.

Q. Just one more question, and that is in regard to the selection of engineers for the manning of the engineering department. We have been told that Mr. Lumsden's recommendations for engineers were always based upon the selection of men made by the various members of your Commission. Did you interfere at all with the personnel of the men in the field?—A. When I came on, the engineering staff was all engaged, and working. Very few were chosen afterwards, except in the case of a man resigning or death, but the bulk of the engineers, those who were on the line, were appointed before I became Chairman.

Q. So that your answer is that there were very few changes after that, and in those changes the various members of the Commission did have some influence?—A. I do not think we had much to say about the appointment of engineers, except in one case, when we appointed Grant. Other than that, I do not remember any case where we forced on Mr. Lumsden anybody that he did not like.

Q. He did not make any protest?—A. Not that I remember. He did not like it when we appointed Grant, but we thought we required an inspector, to report very often to the Board, in view of the complaints prevailing. Mr. Lumsden was an old man and could not get out on the line himself very often, and consequently we had no accurate information by which to govern ourselves. That is why we appointed Grant as engineer.

MR. GUTELIUS: All right. That will do.

Witness discharged.

(EVIDENCE TAKEN IN N. T. R. OFFICES, AT QUEBEC, MARCH 14TH, 1913.)

E. A. Hoar, sworn:

By Mr. Gutelius:

Q. You were Division Engineer of that portion of the railway on which the Cap Rouge Viaduct was being constructed, were you not?—A. Yes.

Q. At the time of constructing this bridge the question arose as to the character of foundations and the kind of structure which would be used over the Cap Rouge River?—A. Yes.

Q. And when you were discussing the various kinds of foundations and the method of building, you secured from Messrs. M. P. and J. T. Davis a preliminary estimate, based on unit prices, did you not?—A. Yes, they made three estimates to handle that foundation work three different ways, and not only the estimate of cost, what they would do it for, but the time it would take to do it.

Q. With reference to the first estimate which you used in preparing your figures for the chief engineer, you recall a letter or memorandum which they sent you and you sent to Mr. Uniacke not a bid, simply figures to be used in the estimates. Do you recall that? I show you a memorandum dated October 27th, 1906, signed by M. P. and J. T. Davis. Just turn to the letter immediately preceding that, October 31st, which you wrote to Mr. Lumsden, enclosing this memorandum?—A. That recalls the whole thing: that is all right.

Q. With that letter and memorandum, you then discussed the matter with Mr. Uniacke as to how these piers should be constructed, and, on account of the low price of the pneumatic caissons, were of the opinion that that would be the proper thing to do?—A. Yes.

Q. Then you asked Mr. M. P. Davis for an official tender, for official prices, that could be used in the contract?—A. I think they asked him for that, yes.

Q. I show you a copy of his final tender. What is the difference between the final tender and the original estimate in the matter of excavation. Refer to the prices under "Pneumatic foundations" in the estimate of October 27th. What was to be the price per cubic foot for excavation in that estimate?—A. Forty cents.

Q. What is the price for the same work in the final estimate?—A. 70 cents.

Q. Timber in caissons in the original estimate was at what price per cubic foot?—A. He has not any price for timber at all.

Q. What is this?—A. 80 by 40 by 25 : that is the price for the timber in the caissons.

Q. What was the price for timber in the final?—A. That is not the same thing. You would have to take that money for the timber in the caissons and divide it by the cubic contents in this estimate to get that

Q. Refer to concrete. What was the price for concrete in his original estimate?—A. That is 75 cents.

Q. What did they finally put in the timber?—A. Same price.

Q. In the crib what was the original price?—A. I do not know what it is here: 44.5. That is 44½, I suppose.

Q. What was the final price?—A. 55 cents.

Q. And concrete?—A. 45 cents.

Q. And what was the ultimate price?—A. 60 cents.

Q. So that the prices were, in the final bid, very much higher than in his estimate?—A. Yes.

Q. What effect did that higher price have on you when you were considering the character of structure? Were you surprised to receive such a high tender, in view of the low estimate?—A. It occurred to me first that there had been a mistake made somewhere: that is all. I thought there was an error some way in figuring.

Q. You thought they must have made some mistake?—A. I thought there was some mistake in figuring in one estimate or the other at first: I did not know which.

Q. But after you saw those higher figures you were ready with Uniacke then to change the design, were you not?—A. Yes.

Q. And while you were figuring on changing the design you were called down into Mr. Parent's office, and he then took the bit in his mouth and told you it must be caisson work: is that right?—A. I am not quite sure where it came from, exactly who said it, but I know caisson work was decided to be the work by somebody, I do not know whether it was Mr. Parent, or who it was: it was settled by Mr. Parent and Butler and Uniacke, between them.

Q. You must remember very vividly that day you were called down: M. P. Davis was there, Mr. Parent was walking up and down the room, and the two of you came in, and he wanted to know what business you had to talk about changing this plan, that caissons were to go, and to get out and do it: is that about it?—(No answer).

Q. Read the fyle and consider it, and see if it is a fair statement of the case, if you recall it, and if you find anything that you think is not right, mark it, and we will talk it over. (Witness retires.)

(EVIDENCE TAKEN IN N. T. R. OFFICES, QUEBEC, MARCH 14TH, 1913.)

E. A. Hoar, Recalled:—I have refreshed my memory, and wish to make the following statement:—

Statements in Mr. Uniacke's letter, May 31st, 1912, are substantially correct, to the best of my recollection, except respecting myself, when I was called to Ottawa December 22nd, 1906, I did not see comparative designs A. B. C., or any estimate showing cost of a long span to dispense with river piers. Mr. Uniacke showed me Mr. Davis's figures for foundations and piers before going to Mr. Butler's office, and I understood him to say that Mr. Butler considered them fair and had approved them. At a meeting at Mr. Butler's office the question of construction was discussed for saving time and cost as well. Mr. Butler favored a single span as being the most expeditious, but no figures were given, nor had any estimate been made to my knowledge at the time. Nothing in the conversation conveyed to me any positive decision to change the river piers, but a suggestion to get rid of the latter work for one span. Not having any figures at my disposal for comparison, I was more or less insistent in trying to get one pier cancelled, as apparently being less disturbing to agreements made. After returning to Uniacke's office to consider proposed changes, the Chairman sent for us to say that no further changes could be permitted, as it would cause too much loss of time making plans, going back to council again, and submitting revised plans, and the delay to the Quebec bridge might be considerable, if such a course were adopted.

(NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATION COMMISSION, OTTAWA, FEBRUARY 5, 1914)

Present: G. Lynch-Staunton, Chairman; F. P. Gutelius.

Mr. M. P. Davis, called, sworn and examined

By Mr. Gutelius:

Q. You took a number of contracts on the Transcontinental Railway during its construction. Can you give us the larger contracts that you were interested in as constructor?—A. The first one is known as No. 9. No. 9 was from the Quebec Bridge westward fifty miles. The next was contract 8 from the Quebec Bridge eastward 150 miles. The next was contract 7, from the 150th mile to the New Brunswick boundary, about 52 or 53 miles. The next were contracts 16 and 17 west of Cochrane.

Q. Contract 9 was let originally to Hogan and Macdonell?—A. Yes.

Q. And you afterward took that contract over?—A. No, we took fifty miles of it.

Q. Were you interested with Hogan and Macdonell in the original tender?—A. No, sir.

Q. How did you happen to take that 50 miles?—A. Mr. Hogan backed out of the contract and A. R. Macdonell, now dead, came down to my office and asked me if I would join as partner with him and O'Brien on the whole contract. I said I never went into partnerships of that kind, but that I would take fifty or seventy-five miles, or I would go as far as what we call Harvey Junction where we pass on the C. N. R. There is a road across there.

Q. Yes, the C. P. R.—A. No, it is not the C. P. R. It is a road running from Montreal to River Pierre.

Q. The Canadian Northern?—A. Yes; it is now called Harvey Junction on the Transcontinental. So, he agreed to let me have the first fifty miles.

Q. You got the same prices?—A. Exactly the same prices. I signed the same contract.

Q. So, you actually took over that portion of their contract the same as if you have been on the original tender?—A. The same as if we had been on the original tender.

Q. You constructed what is known as the Quebec Branch from the yard at Ste. Foye down in Quebec?—A. Yes, sir.

Q. We did not find that there was any competition in the way of tenders for that contract. How did you happen to get it?—A. I was the original contractor for the Quebec Bridge and Railway Company from Quebec to the north abutment of the Quebec Bridge, for the Quebec Bridge foundations, for the road from the south abutment of the Quebec Bridge to a junction with the I. C. R. When the Dominion Government took over the Quebec Bridge Company, they assumed my contract and then they turned the contract over to the Commissioners. That is all in the contract. The reasons are all given in the fyle of the contract for No. a In that contract, in all of the original documents held in the Commissioners' ffice, I signed off all rights and claims under the old contract.

Q. The old Bridge Company being released?—A. The Government absolved the Bridge Company.

Q. Do you know what is known as the Sillery incline?—A. Yes, sir.

Q. That is a roadway constructed from the hill under the old church at Sillery down to the right- of-way? Under what conditions did you get that job?—A. Simply ordered to do the work by the engineer as part of Contract 9A.

Q. Was it paid for in unit prices the same as Contract 9A?—A. Under 9A.

Q. As far as you know it was a portion of work under 9A?—A. Yes.

Q. And you were paid for it under your contract basis?—A. Yes.

Q. Did you have any property along there? Do you remember any property that was used for the construction of this incline?—A. Yes, the whole of it was on my property. They removed some houses.

Q. Do you remember what you were paid for this property?—A. Never paid me anything; never even offered me anything.

Q. That matter is still open?—A. (Witness nods assent.)

By the Chairman:

Q. Speaking of what Mr. Gutelius asked you about the Sillery incline, I am told that it was built by the Commission because a number of influential gentlemen in Quebec asked that it should be built. Do you know anything about that?—A. Yes, your information is good.

Q. And that it is not really a part of the railway?—I don't mean to say now you were one of the gentlemen asking for it?—A. I certainly was not one of those gentlemen who asked for it.

Q. I don't want to make that out. It was no part of the railway, was it?—A. Well, it was a part of the railway, when the same is in diversion of any road.

Q. But they did not divert the road?—A. It was a diversion of the road.

Q. The two roads are there yet?—A. One was abandoned.

Q. Is not this the fact, that on the Sillery hill there was an old kill-horse road?—A. Yes.

Q. And that when the railway was built a number of influential gentlemen in Quebec waited upon the Chairman?—A. You are getting beyond my knowledge.

Q. Is it not a fact, that the building of this road was simply to improve the means of communication from the top to the bottom of the hill?—A. I do not think so.

Q. What reason was it for?—A. Because the foot of the old road came so close to the railway that I have heard the argument that it would be dangerous to drive horses down that hill with a train coming up against them.

Q. Do not the two roads meet at the foot of the hill?—A. No, sir. The foot of the two hills is quite a distance apart.

Q. How close to the foot do the two roads come together? Where the man drives down the hill on the old road he comes within how far of the railway?—A. I would not say how far, possibly a hundred feet.

Q. Where a man drives down to the foot of the hill, how far is the new road?—A. Nearer three hundred feet.

Q. So that they were 100 feet away on the old road and 300 feet on the new?—A. Yes.

Q. And the new road is how far from the railway lands?—A. It would be about 250 feet. They have 100 feet right-of-way.

Q. Have you any claim for the land on which the new road is built?—A. Most certainly.

Q. What did you claim?—A. I have not put in my claim yet.

Q. What do you think it is worth?—A. Seven or eight cents a foot.

Q. What does that mean in dollars?—A. I could not tell you just now.

Q. Was it expropriated by the railway company?—A. They took possession and built the railway, and pulled down my houses.

Q. The position was, that you, under the instructions of the Commission, built a public road on it?—A. Of the engineers.

Q. Built a public road on it. I think you will have some difficulty in getting paid for it?—A. I am not afraid of that.

By Mr. Gutelius:

Q. In connection with the method of constructing deep foundations at Cap Rouge, where the railway is carried across the Cap Rouge River, it appears from the evidence we have taken that these foundations were not built in accordance with the engineer's original scheme, and that after a discussion which you had with Mr. Parent, a proposition which you had recommended, and method, was adopted. Is that, in a general way, right?—A. No, sir.

Q. Will you tell us the story of that?—A. The plan set down for these two piers in the river was first on piles with a bottomless caisson on piles. In the first place, there were some 30 or 40 feet of almost liquid mud there. This plan was piles driven in the mud and a bottomless caisson filled with concrete. Now, we have a tide 15 or 18 feet there, and I said I would not be responsible for putting concrete in a bottomless caisson with the water flowing through it four times a day. Then they suggested a bottom in the caisson to land on the piles. I said I would not be responsible for that, because the current would shoot the mud out between the piles. We had considerable discussion with Mr. Lumsden. He asked me what method I would agree to. I said: "Put in a pneumatic foundation." He did not want to agree to that. After a while, the whole Commission met in Quebec. Lumsden was there; Woods, for the Grand Trunk;—I don't know whether Kelliher was there or not. I said. "Gentlemen, I won't be responsible for the structure or its foundation if it is built on either one of these foundations; but you can take that piece of work out of our hands and discharge our contract and do it yourselves. I don't want to do it for you by the day under those conditions, but cut it out, and go ahead and do it yourself." Then Lumsden was asked: "Now, Mr Lumsden, you give two propositions there for building those piers. Will you undertake to assure the Commission and guarantee them that either one of these propositions will be a safe foundation?" But he said: "I will not." I was asked the question: "Certainly, if you build a pneumatic foundation you will naturally go until you are satisfied your foundation is good?" And I replied: "If we get a good foundation I will guarantee our work." Mr. Lumsden said: "We want a safe bridge:" and undertook to arrange that the contractor should put in a pneumatic foundation. Then the next point we came to: Mr. Lumsden even then had designed a caisson for the pneumatic foundation. His design of the caisson was the peak, fore and aft, and that only gave us a foot on the lap at the shoulder. I said "I won't build that caisson if we get leaks in that we have on that shoulder no strength; give me a square caisson. So he said: "Well, gentlemen, pneumatic work is outside of my line; if Mr. Davis will submit a plan of caisson he will guarantee to put down there, then we will agree to take it." Well, I was after building the Quebec Bridge and I submitted a plan, just the Quebec Bridge, only modified for a load, where we had four or five feet of a roof on the Quebec Bridge we had only two feet on that caisson. Our sides were only 20 inches altogether, and we reduced them all in that way. Then these plans and designs were submitted to Mr. Lumsden and he took them to Mr. M. J. Butler, then chief engineer and Deputy Minister of Railways and Canals, and he made some modifications and actually made the prices we worked on.

Q. There is some criticism of prices. You first gave the engineers an idea of detailed prices without a tender, and then later you made a tender?—A. I think they were not detailed prices.

Q. But the final detailed prices were very much higher than the first prices that were given to the engineers?—A. The prices, sir, were made by Mr. Lumsden and Mr. J. M. Butler. I think any prices that were made would have been the prices per yard, take it all round.

By the Chairman:

Q. Mr. Uniacke says you first put in a price: that was a price which was a little more than the plain caissons: that, afterwards, you increased that price so that it brought it up to two hundred thousand dollars more, and that Butler refused then to act on them, and the matter was then sent to the Chairman, and the Chairman and you were in his room in Ottawa, when Uniacke—and this is according to Uniacke's statement to us—was sent for and he came down and the Chairman told him he was to build the caissons in that way at those prices.—A. I must contradict him absolutely and positively.

Mr. Gutelius: There is no doubt the figures that were finally agreed upon were passed on by Mr. Butler?

The Witness: Yes.

Mr. Gutelius: But as to how that was arrived at your side of the story, while there may be some variance, finally lands at that place, at any rate.

By Mr. Gutelius:

Q. The special point that we desire to call your attention to, Mr. Davis, is that you gave a tentative figure on which the engineers estimated. They then agreed that pneumatic caissons were the proper things to build. You were then asked for an official tender. This tender was so much higher than the tentative figures that the engineers decided that they would adopt some other method, as it ran the total cost too high to make the caisson method the proper and economical one. It is said that, after the engineers agreed to change the plan, you went to Mr. Parent's office and had him instruct the engineers to build the caisson and accept your final prices. What have you to say?—A. I never in any shape or form, made any request of Mr. Parent to build the foundations of that bridge or to build those piers in any one way or the other. The only point that I ever raised was, that I would not be responsible for the work being built either on a pile foundation with a bottomless caisson or on a pile foundation with a bottom in the caisson, and that we preferred to have them take that piece of work out of our hands and build it themselves.

Q. So, we are wrong in the assumption that you used any influence with Mr. Parent to adopt a given plan in connection with it?—A. Positively so.

Q. We are advised that the original plans for the piers and abutments of the Boucanne River Bridge contained groins and arches, or voids, and that you explained the matter to Mr. Parent in such a way that he over-ruled the engineers and it was built in the solid. What is the story of that?—A. The original plans of the piers were solid. After we started the work, they sent down plans showing these voids and openings in the abutments and piers and we refused to build them on the prices of the solid piers.

Q. Because?—A. Because the cost of forms was a great deal more. We were even ordered to build a solid pier and paid the neat measurement of the one with the voids. And then we were ordered to go ahead and build it on the original plan.

Q. And you arranged that through the Chairman?—A. No, sir; with Mr. Doucet.

Q. Now, with reference to classification. Did you ever know a solid rock specification in which was included rock fragments less than a yard, and paid for as solid rock in this manner?—A. No, sir.

Q. Were you aware at the time you tendered on these contracts that the solid rock specification would be construed to include these small rock fragments?—A. Yes, sir; we judged so under the specification of cemented material.

Q. It would appear from the evidence that you had access to the engineers' estimates prior to making up the tender for contract 8. Did you have those quantities?—A. No, sir. No information other than the plans and profiles for which we paid a dollar a mile. They were issued to everybody.

Q. In connection with any of the contracts which you secured, you did not have any private information in regard to quantities?—A. No, sir.

By the Chairman:

Q. Why did you put in your tender eighty dollars for timber?—A. As a fair value. That eighty dollars calls for either Southern pine or British Columbia fir. I think it calls for it in large sizes, 10 x 16 or 12 x 16 stringers, and that timber would have to be hauled twenty or thirty miles.

Q. It is the only contract in the whole construction of the Transcontinental Railway that the tenders for timber went above $55?—A. I am not responsible for that. But I submit today, Mr. Gutelius, could you take Southern pine 10 x 16 or 12 x 16 and haul it twenty-five or forty miles from a railway, and put it in place at $55? In the first place you pay about $35 per thousand.

Q. Why didn't you repeat that $80 bid in other contracts?—A. I could not say.

MR. GUTELIUS: This was more difficult of access, possibly.

THE CHAIRMAN: This was the easiest one of access.

By the Chairman:

Q. The items are:
No. 24. Frame trestles per 1000 feet B.M., except stringers.
No. 26. Caps, walings and braces for pile trestles per 1000 feet B.M.
No. 27. Sawn ties and guard rails for bridges per 1000 feet B.M.

Now, these are the items on which you bid $80, and there are no contracts on the whole line where any price was bid over $55 for the same work. (Consulting papers). $50, $45 and $60 for stringers in one case. Will you explain on that contract, which was not as inaccessible as many others, how you bid such a price with any hope of getting the contract?—A. The only thing I can say, when we bid that price we thought it was a fair price for the work.

Q. I could understand that bid, Mr. Davis, if you were aware of the fact, as the fact was, that at the time you made that bid the engineers' estimates comprised no item for that material?—A. I did not know anything about that.

Q. Do you swear you did not know directly or indirectly, that they did not intend to use that material on that contract?—A. Positively, sir. One thing I can tell you, that the profiles we got from the engineers' office certified to, did not show one foot of permanent trestle.

Q. Do you say that you did not know from any source, outside of the legitimate material submitted to you, that the engineers did not contemplate the use of that material?—A. Most positively, no, sir, I did not. I had no information or no idea of it other than information we got from the profile which did not show any trestles on the line.

Q. And you inferred or concluded that it was not intended to use that material?—A. No, sir, we did not. We bid that as a fair price for the work if it was required to be done.

Q. Did you ever bid a price approaching that on any other contracts for the same material?—A. I could not tell you that without having the contracts.

By Mr. Gutelius:

Q. In connection with contracts 16 and 17, there were two contractors tendering, M. P. and J. T. Davis and the Grand Trunk Pacific Railway. Was there any arrangement between you and the G. T. P. Ry. in connection with these contracts?—A. No, sir.

Q. You sublet these contracts to Mr. M. J. O'Brien and his associates?—A. Yes.

Q. Was there any arrangement between you and M. J. O'Brien in the tendering for these two contracts?—A. No, sir.

Q. M. J. O'Brien did not know he was going to get that contract if you secured it?—A. No, sir.

Q. In subletting your various contracts, did you use the same clauses with your subs that the Commission used with you, in connection with the plant becoming security for the completion of the contracts?—A. We made our specification with the Commissioners a part of the contract with every sub. We used the specification entire.

Q. So that the answer to that is, yes?—A. Yes, that is, in this way, Mr. Gutelius. We held our subcontractors' plant for the purpose of completing the work, not as a matter of security, only for the purpose of completing the work. When the subcontractor's work is completed we do not claim any lien on his property: we are only the same as an ordinary creditor.

Q. But the Commission would have the same hold on the subcontractor's plant?—A. As if it was owned by us.

Q. In connection with that 80 dollar lumber, did you know that the first moneyed out tenders were sent back from Mr. Parent's office?—A. No. sir.

Q. You had no knowledge of any switching or moneying out at that time?—A. No.

By the Chairman:

Q. You sublet part of contract 7, did you not?—A. We sublet the whole of it.

Q. Have you got any sub-contracts?—A. We have contracts with all our sub-contractors.

Q. Will you produce the sub-contracts for contract 7?—A. Yes, sir.

Q. I want to know whether or not there was ever any pressing by the Commission to you to commence the work on contracts 16 and 17?—A. No, we got that contract.

Q. Yes, but I am just asking you that. I enquired from Mr. Ryan and he tells me there was not. I just want to have a confirmation of it on your part.—A. I do not think so.

Q. Do you know whether or not there was ever any pressing or urging by the Commission to O'Brien and Co. to speed the work after they obtained assignments of the contract?—A. No, sir.

REPORT

OF THE

National Transcontinental Railway

Investigating Commission

VOL. II

EXHIBITS

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1914

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N. T. R.

INVESTIGATING COMMISSION

Exhibit 1

General Instructions to Civil Engineers.
(See Page 15 of Report)

THE NATIONAL

TRANSCONTINENTAL RAILWAY

EASTERN DIVISION

GENERAL INSTRUCTIONS

TO

CIVIL ENGINEERS

CONCERNING

SURVEYS AND CONSTRUCTION

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THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

General Instructions

From the Chief Engineer to the Staff, Explorations and Preliminary Surveys, Location and Construction.

ORGANIZATION.

The organization of the Engineering Department is as follows:—

1. Chief Engineer, reporting to the Commissioners.
2. Assistant Chief Engineer, reporting to the Chief Engineer, and in his absence acting in his place.
3. District Engineer, reporting to the Chief Engineer, with jurisdiction over the parties in his District.
4. Assistant District Engineer, in charge of a number of parties, reporting to the District Engineer.
5. Divi ion Engineers, reporting to the District Engineer, and on construction in charge of a number of residencies.
6. Engineers in charge of parties on Exploration, Preliminary and Location Surveys, reporting to Assistant District and District Engineer.
7. Resident Engineer, in charge of a residency on construction, reporting to the Division or District Engineer.
8. Engineers entrusted with special duties, such as buildings, water service, bridges, etc., reporting to the District Engineer or Chief Engineer as may be instructed.
9. The Districts to be designated as A, B, C, D, E, F; the party will be numbered 1, 2, 3, etc., and the proper naming will give in every case the letter of the District and the number of the party.

DISTRICT ENGINEER.

10. The District Engineer is in full charge of all the parties in his District; he is responsible for the faithful execution of all instructions, general or special, which may be given from time to time, as well as for the proper maintenance of discipline in the parties. He will see that the Engineers in charge of parties are properly instructed, that they are competent men, and that they faithfully perform the duties entrusted to them; he will instruct the Commissariat Officer from time to time as to the stores required and will make all requisitions for supplies so as to give ample time for purchasing and delivering same; he will certify to all accounts, pay rolls, etc., and send them in to the Chief Engineer on the first of every month; he will report to the Chief Engineer monthly, and oftener when opportunity offers, on all matters of interest affecting the work in his District. Duties

It will be his duty to know the general character of the country through which the line is being run and to see that ample exploration is made in advance of the preliminary lines. Explorations

District Engineers will send fortnightly to the Chief Engineer, from the reports received by him from his Engineers, as called for in Section 12, a full report of all the work done in his District. Reports

On the first of every month, he will summarize to date all matters bearing upon his operations, giving progress being made, and such other matters as are of interest and value affecting the work.

He will forward to the Chief Engineer, duly approved, pay-rolls, expense accounts and bills.

He will take a blue print copy of the plans and profiles received and forward to the Chief Engineer's office the original tracings.

ASSISTANT DISTRICT ENGINEERS.

Duties

11. The Assistant District Engineer has in his charge the number of parties allotted to him by his District Engineer; he will make his headquarters as near the centre of his operations as practicable, and will at all times keep in close touch with all parties under his direction; it will be his duty to guide and direct the Engineers in charge of parties, to see that they are competent and that the work is being efficiently done; he will visit the parties frequently and will remain with them for such lengths of time as will enable him to reach just conclusions; he will report by mail to his District Engineer on every available opportunity, but in every case on the first of every month, on the operations of the preceding month.

ENGINEERS IN CHARGE OF PARTY.

Size of Party

12. The party in a bush country will usually consist of a transitman, levelman, topographer, field draughtsman, rodman, two chainmen, picketman, four axemen, five packers and a cook. The Engineers in charge will be responsible for the

Competency

honesty, sobriety, industry and "competency" of the men under their charge, and they must give "personal attention" to see that transitmen, levelmen and others understand their work and are conscientious in its performance; they must give special attention to see that instruments are kept in adjustment; that all possible checks upon the accuracy of the work are used, and that note books are neatly and accurately kept; that the plans and profile are plotted up every day;

Supplies

that the party is well supplied with instruments, tents, stationery, provisions, and that all the tools and outfit for the proper and vigorous prosecution of the work are on hand in good order.

Cooking, Etc.

They must see that their camps are neat and orderly, and that the cook uses provisions economically, and cooks the food neatly and cleanly.

Engineers in charge of survey parties will make a report fortnightly to their District Engineer, to the extent of their operations during the preceding two weeks; sending in tracings of plans and profiles, prepared in accordance with the sample sheets Plate "C" and "D".

On the first of every month he will summarize the work done to date, by filling out the blank spaces in form 21; together with any special matter of interest or information. He will send in his pay-rolls, expense accounts and all bills for service or materials in quadruplicate. He will certify to the correctness of the pay-rolls and the bills will be certified to on the following forms:—

Stamp A" "I hereby certify the above personal expense account to be correct and to have been incurred by me on the business of the Trans-Continental Railway."

Stamp B" "I certify the above goods have been received."

Stamp C" "I hereby certify the above board bill to be correct and to have been incurred on the business of the Commissioners of the Trans-Continental Railway, and that the prices charged are fair and just."

Stamp D" "I certify that the service described in the above account has been performed, and that the price charged is fair and just."

Stamp E" "I hereby certify that the goods mentioned in the above account have been received, and that the prices charged are fair and just."

Stamp "A" is to be used in certifying to personal expense accounts when the regular form stamp is not available. Stamp A"

Stamp "B" is to be used in certifying to the receipt of supplies, etc. Stamp B"

Stamp "C" is to be used in certifying to board bills. Stamp C"

Stamp "D" is to be used in certifying to accounts for work performed, such as teaming, etc. Stamp D"

Stamp "E" is to be used in certifying to accounts for supplies purchased by the Engineer in charge. Stamp E"

13. Whenever the Engineer in charge of a party finds it neeessary to leave the party, or in the event of sickness, he shall at once notify the Assistant District Engineer, who will appoint a person to temporary take charge of such party, and in case he fails to do so, or during the interval of such appointment, the Transitman shall take charge. Engineer in Charge Ill or Absent

TRANSITMAN—DUTIES.

14. The Transitman on beginning his work will first enter in his field book, the letter of the District, the number of the party, the name of the Engineer in charge, his own name and the date on which the work began; each page shall be separately dated and initialed; he shall make full note as he proceeds of the character of the country, soil, rocks, lakes, creeks, timber, gravel pits, etc., on each side of the line. All the field notes must be clearly entered in pencil on the spot; no additional notes should be entered with the original notes after the day on which the latter are written; field notes must not be inked in or altered in any way—copies may be made in ink. All plans and profiles must be plotted so that the end nearest Winnipeg shall be at the left hand of the paper and the end nearest to Moncton shall be at the right hand of the paper, regardless of the local sinuosities of the line. Field Book Entries — What to Note — How entered — Plotting Plan Profile — Direction of line

Horizontal scale shall be 400 to an inch. Vertical scale shall be 20 feet to an inch. Ten miles to the sheet. Scales of Maps and Profiles

The transit instrument is to be used on all lines, when the progress of the party will not be retarded thereby; in an open country it is the quicker instrument; in thick bush on preliminary lines use the compass or pickets, taking the angles with the box sextant or by compass bearings, or both. Observe for latitude and azimuth, noting the magnetic variation of the compass—check your azimuth frequently so as to insure a close check on your traverse. Measure your deflection angles carefully, noting whether right or left check by doubling the angle; at the same time note the magnetic bearings, taking all possible checks to insure accuracy. Instrumental Work — Observation for Azimuth Latitude

Tie your line to all townships and subdivision lines whenever crossed, give the station number and plus, intersection angle, distance to nearest post; when the line runs through a village, town or city, take enough measurements and angles to correct the survey with the map of the place, send a copy of such map to the Chief Engineer's Office; note carefully all property lines and locate all buildings that are near to the line. Survey Tie

Test your chain with the 50 foot steel standard supplied. See that it is kept of the correct length; the chaining must be correctly done and a stake driven at the end of each hundred feet, and the number of chains from the starting point of the party marked thereon. The initial stake to be marked with the letter of the district and the number of the party. Chaining

At every apex a large stake shall be driven, having its proper distance and the deflection angle written thereon. The line is to be sufficiently cleared to enable levels to be taken. Apex, how Marked

The chaining will be noted regularly in the field book from the bottom of the page upward; each hundred foot stake as driven noted on a separate line; the Notes, how Entered

space on each side of the column for distance being used for such note and sketches in the right and left of the line as may be necessary in order to give the fullest possible information of the country.

What to Note

Note every stream and river crossed, its size, direction, depth of water, nature of bottom, flood marks, probable maximum volume, and whenever possible the depth to solid foundation; give full particulars of banks.

LEVELLERS' DUTIES

15. The Leveller will open his book by entering on the first page thereof the letter of his District and the number of his party, the name of the Engineer in charge and his own name with date of commencement, each morning he will date his notes and sign with his initials.

Rodman

He will be careful to fully instruct his rodman as to the duties of his position.

Field Notes

All field notes must be clearly and distinctly made in pencil on the spot, no additional notes should be entered with the original notes after the day on which the latter are written; field notes should not be inked or changed in any way; copies of them may be made in ink and reduced levels entered in ink. Great care must be taken to preserve the original field notes from obliteration.

In making entries be particular to describe the locality, line, etc., so that any other Engineer can easily find the place and understand the whole at a glance.

Bench Marks on Preliminary

Bench marks should be regularly established about every 1,500 feet, and the elevation above datum written thereon thus, viz.: the elevation, letter of the District, and number the party. Each bench mark must be fully described in the column of remarks. When two parties meet both shall check on the same bench mark, noting difference in elevation.

B. M.
1220.3
DISTRICT "A"
PARTY 3.

On Location

On location the bench marks should be about every 1,000 feet and always at the two ends of heavy cuttings, tunnels, deep fills, bridges, viaducts, etc.; positions should be selected so that they will not be destroyed in the clearing of the railway lands or be interfered with by the works. They should be numbered consecutively in each party and their numbers and elevations above datum distinctly and permanently marked thereon with blue paint, and on timber with a "scribe." When the line does not pass through timbered land, and other suitable objects cannot be readily found for bench marks, substantial posts must be sunk in the ground at least five feet, and be well packed to insure them against being raised by the frost.

What to Note

Note every stream and river crossed, its size, direction, level of surface of water, difference between high and low water, if practicable depth of the water and any peculiarities it may seem to possess. Note character and constituents of materials along the line for classification purposes.

Accuracy of Work

Every care must be taken to insure accuracy. Check back on B.M's. when necessary or possible; particular care will be exacted to insure accurate reductions; teach your rodman to check reductions; read your rod to hundredths at every turning point and all B.M's.; on ordinary stations at intermediates on the line, to the nearest tenth; check the levels at the end of each day's work by adding back sights and foresights and ascertaining the differences; any doubtful sections must be re-levelled. Six hundred feet each way should be considered the maximum distance to read the rod.

Cross Section

Before fixing the final location cross sections of all side hill work will be made, and before beginning work of grading cross sections at least at every 100 feet station whether in excavation or embankment, and also at a sufficient number of intermediate points, wherever a change in the ground takes place, so as to insure a perfectly accurate record of the various inequalities of the original surface. These cross sections will extend on each side of the centre line and at right angles thereto

a sufficient distance to include all side ditches. The levels on these cross sections shall be taken in the same manner as those on the line, always commencing at a bench mark, using the same datum and checking on a B. M. at the end of the work. The actual rod reading and distance out right or left, as the case may be, as observed in the field shall be entered in the cross section field book, Form No. 8. *The customary cross section notes according to American practice, which are the result of a calculation, will not be allowed.*

Extent of Cross Section

What to Set Down

In all cross sections a level should be taken over the edge of the roadbed to facilitate the computation of earthwork. In excavations in earth the width at formation will be 22 feet, in rock 20 feet, in embankments 16 feet and under, in height the formation width will be 16 feet, beyond that height the formation width of embankment will be 18 feet. The side slopes in earth will be $1\frac{1}{2}$ horizontal to 1 vertical, in rock excavations the side slope will be $\frac{1}{4}$ horizontal to 1 vertical. Rock embankments 1 horizontal to 1 vertical (see C ause 5 Specifications). Hence in earth excavations, the levels should be taken 11 feet north and south of the centre line; in rock excavations 10 feet, in embankments 16 feet and under, 8 feet north and routh of the centre line; over 16 feet high, 9 feet, levels should also be taken at the precise point of the slope stake and the exact horizontal distance out from the centre line recorded.

Level Sections Required

Width

Slopes

When off-take drains are required, a longitudinal section of them must be made in the same manner as for the centre line of the railway, and if necessary. cross sections also.

Off-take Drains

All profiles will be plotted on Plate A standard transparent profile paper, 400 feet to an inch horizontal, 20 feet to an inch vertical, *and must contain all the information called for by the sample sheet "Plate C."* Stencils will be supplied for the purpose of saving time in lettering. That end of the line nearest Winnipeg shall be at the left hand of the paper, and the end nearest Moncton at the right hand, regardless of the local sinuosities of the line; ten miles to a sheet should be the rule.

Plotting of Profile

TOPOGRAPHER'S DUTIES

16. The Topographer will open his book by entering the letter of the District, the number of the party, the name of the Engineer in charge, his own name and the date.

He will carry an Abney or other type hand level, a fifty feet tape line, a pocket compass, a rod 5 feet long to sight from, a levelling rod graduated to tenths, and should generally have two men to assist in clearing out brush, make measurements, etc. He should always have with him the reduced levels of the stations so that all work will be on the same datum. He must determine the contour lines in even multiple of 10 feet, locating the position of the round figure contours, in general contour lines should be taken at 10 feet vertical intervals; he will carefully fix opposite the stake the true position of the contour line and will sketch in the connection between stakes; for example, assume that the reduced level at station 12 was found to be 976.2, the elevation of contour line 980 will be at 3.8 feet higher, etc. Note the distance to this point, 10 feet higher the next contour will be found, etc., etc.

Instrument

He will enter in his book in pencil on the ground all the artificial features met with on the line, being particularly careful to secure intersection plus and the angle the line makes with all farm lines, township lines or other boundaries, the names of the owner and occupant of any land so crossed, proximity of buildings, cross fences, etc., being careful to tie the line to village or town surveys, township and county lines, measuring to the nearest post, marking lots, concessions, ranges or other local subdivisions in use. All the natural features are to be sketched, as streams, shores, margins of swamps, forests, ravine ridges and bluffs, taking

What to Note

care to have them correctly intersect the artificial features. It is desirable to know not only the locality of a hill or slope, but also its shape, steepness and height; sketch contour lines, do not use hatchings.

How Entered in Book

The centre line of the Topographer's book is a straight line and for the purpose of the sketch, the centre line of the survey may be considered a straight line also. Slight deflections in the course of the preliminary line may be ignored in the sketch, but if a large angle occurs it is better to terminate the sketch with the course and begin again, leaving a few blank lines between the two sketches. Fix the distance from centre line stake both by levels and measurements. Each day's work must be plotted on the evening of that day.

General

The Topographer should have a knowledge of geology and should be able to name the materials he finds, such as limestone, slate, shale, granite, gneiss, trap, clay, cemented gravel, gravelly loam, etc., etc. He should also designate in order of occurrence the several trees, such as pine, spruce, etc.

He should have an eye for the main essentials to enable him to only select the important things.

The width of the belt of country examined necessarily depends on the character of the country through which the line is being run. The reconnoissance line should have determined in a general way where the preliminary is to be run, which should be as near to a practicable railway line as possible; hence the width of the belt should be governed accordingly, the object being to secure such a representation of the surface of the ground as will enable the best possible line to be located on the ground under examination. It will be obvious, therefore, that when the preliminary line is made up of long straight lines with light angles and is within reasonably close distance of the grade line that less topography will be required. If on the contrary, the preliminary is made up of a series of short lines with great and small angles a wide area of topography should be taken in order that a careful study may eliminate curvature. On a side hill it is advisable to cover the whole slope; in a valley it is advisable to include the whole valley. The meandering of a river or creek should be carefully taken, boundaries of lakes, etc.

Note specially the presence of springs on side hills.

FIELD DRAUGHTSMEN.

17. The Field Draughtsman will plot up with care the plans and profiles each day as the notes are received by him. In plotting maps he will do so by latitude and departure. Show north point, giving astronomic courses of all lines, and marking on the map the magnetic variation. He will plot all contours with care, making every fifth line heavier than the others. He will mark on the lines the elevations in feet, referring to the datum by name. The left hand side of the paper will show that portion of the line nearest to Winnipeg. The same care will be taken to plot up profiles; the grade lines on profile will, however, be fixed by the Engineer in charge of the party, The map and profile must contain all the information called for in the sample sheets, Plates C and D.

Stencil to be Used Reports to District Engineer To Keep Work up Tight

Use the stencils provided for title and lettering to save time. Tracings of maps to be sent to the District Engineer on the first of the month. Profiles to be prepared on tracing profile paper and sent in along with the plan of the line. The Field Draughtsman must keep his work up tight to the field work, particularly on location work. The projected location should be made by the Engineer in charge.

PRELIMINARY LINES.

18. When the country along the projected route has been sufficiently explored to enable a choice to be made, preliminary lines will be run. The first preliminary

will be run as rapidly as possible; use either the transit or compass or a picket line for the alignment. Do not waste time backing up; this line is to develop the country; use offsets freely where required; cover as much ground as possible; be absolutely sure of your levelling, checking with care to avoid errors. The Topographer should make wide excursions so as to secure all the information possible. First Preliminary

The second preliminary should be run with more care, seeking to place it as closely as possible to a reasonable line for the railway. In crooked, difficult places, it will be necessary to stake out approximately the curves required. Topography in such places must be carefully and accurately taken. Enough information should be secured to permit of a projected location on the map. Take out the quantities on this projected location and compare different lines on the basis of total cost. Second Preliminary

Run enough preliminary lines to be absolutely sure that you have exhausted the possibilities of the country under examination.

LOCATION.

19. Once the preliminary lines are all completed and sufficient contours have been taken to enable a projected location to be worked out on the map, fit the first location to the ground shown on such projected location; run in the curves with care; in thick bush it is not necessary to run in spiral curves; cross section all side hills and rough places; take out the quantities accurately, and secure all needful information to enable an accurate estimate of cost to be made. Full and careful studies of all large bridges, viaducts, etc., should be made. First Location

The second location will be made by utilising all the information secured. The working profile will have on it the results of the first location, additional contours required, additional cross sections, etc. Study the line in detail station by station, paying particular attention to sections of heavy work, bridge and viaduct crossings, having due regard at all times to lines of total cost. It is advisable to change the personnel of the Engineer in revision work. A third location may be found desirable in certain cases; indeed, before considering the final location as settled, it is necessary to know that no better line is to be had in the country. Second Location

The preliminary locations do not demand that the stakes, reference hubs, etc., should be set with that degree of permanence which the final staking out requires; for obvious reasons it is preferable to wait until the right of way is cleared before such final staking out. All Bench Marks will be carefully checked, errors eliminated, curves will be staked out, all easement curves staked out, errors in chainage eliminated, etc. Final Staking Out

DIRECTION OF LINE.

20. For the purpose of measuring and record, the line of railway will be considered as running westerly.

PLOTTING.

21. All plans and profiles will be plotted so the westerly end will be at the left hand of the paper.

CROSS SECTION PLOTTING.

22. All cross sections will be plotted so that the measurement north of the centre line will be at the right hand, those south of the centre line at the left hand.

DATUM.

23. The same general datum should be carried throughout the whole line, preferably the mean sea level. As this may be found to be impracticable, each District Engineer will be required to see that a uniform datum is adopted for the several Divisions of his District. When the levels meet at the end of the Districts the exact difference will be ascertained and noted. District B has special facilities to secure the mean level at Quebec, so that all other Districts may be readily reduced to the mean sea level.

REFERENCE HUBS.

24. Reference hubs should be placed at the beginning and end of each curve and on tangent at every twenty stations. In placing reference hubs, it is well to fix the point by intersection lines rather than measurement. The hubs should preferably be set at an angle of 45° with the line at even distance of say 100 feet from the centre stake. When a line is near a river or lake or other obstruction, prohibiting the above described method, it is advisable to set off a line at right angles and two other lines making angles of 45° with the line and drive two or more hubs on each line at stated distance of 50, 75, etc., feet from the centre stake. The reference hub should be 3″ diameter and 12″ long, and should be driven level with the ground, the exact centre being marked with a nail or tack. The stake alongside should be marked with the station and plus, and such other marks as will indentify the point. For example: R. H., 100′ left, Sta. 106+25, B. C. 4° left.

TABLE OF BENCH MARKS AND REFERENCE HUBS.

25. Table of bench marks and reference hubs describing exactly their position, and in case of the former, giving the number and elevation above the datum of the District, must be made out and copies filed in the District Engineer's office. The position, number and elevation of bench marks should also be entered on the working profile, at their proper station and plus.

CURVATURE.

26 The maximum curve on a level shall not exceed 6° (Rad. 955′). This curve should be used sparingly and only when the topographical conditions prohibit an easier radius. At depots or stopping places curves exceeding 3° Radius 1910°) should not be used. Curves less than 300 feet long are objectionable, and should not be used. Reversed curves must not be used under any circumstance; at least 600 feet between transition curves must be had. Broken back curves must not be used. The minimum tangent between curves in the same direction shall be 600 feet clear of the transition curves.

COMPENSATION.

27. All curves will be compensated in accordance with the following rules: If at a stopping place, depot, etc., compensate 0.10′ per degree in the index of the curve; at other portions of the line compensate 0.04′ per degree in the index of the curve.

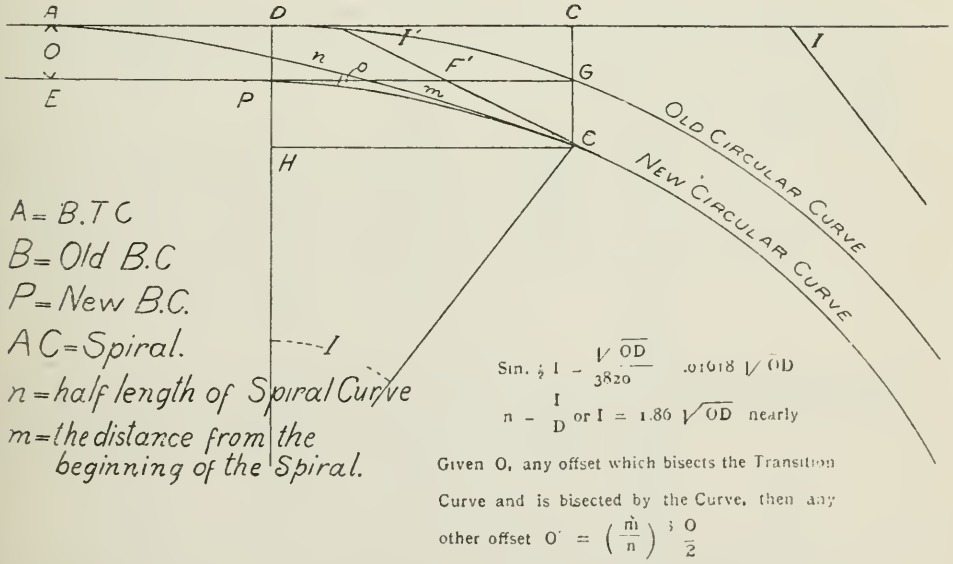
TRANSITION CURVE.

28. All curves of one degree and over will be spiralled at both ends by putting in an adjusted curve in accordance with the table and explanation which follows:

The cubic parabola as developed by the late A. M. Wellington, will be used in connecting tangents to all circular curves 1° and over. In staking out the transition curve, you will follow the rules below.

(a) Calculate for an ordinary circular curve as usual and run the tangents to the "B.C." and "E.C." as usual. (b) Make an offset at the "B.C." towards the centre of the curve (value of O); this is the distance the circular curve is moved inwards (note the distance within the limits of the table should be as great as possible); (note also that the length of the transition curve is a function of it), and that it should always be long enough to run out the super-elevation called for in the table (see Section) 62 (c) Calculate the distance the curve "B.C." should be moved backwards by formula Tan. $\frac{1}{2}$ Intersection angle x O. (d) Run in the main circular curve as usual from the off-set "B.C." (e) From the tangent and curve as thus run in, make the off-sets shown in the tables for the given value of "O". These are the same IN from the tangent OUT from the curve at the same distance from the "B.C." and "E.C." of the transition curve. At the old "B.C." the transition curve bisects the off-set "O" and is bisected by it. The off-sets are calculated for every 30 feet, one rail length, up to a distance of 240 feet. (f) To record the curve put in new "B.C." off-set at old "B.C." giving Station and plus as usual, "4.5 R. or 4.5 L.," as the case may be. (g) The plotting can be done as usual and the new curves drawn in parallel with the old one showing the spiral at each end thereof. (h) The description for Right of Way calls for a given width each side of the centre line. In describing land where spiral curves are used, it will be sufficient to say: Thence by a tangent bearing "N"-"W", (as the case may be,) from Station....to Station....a distance of.. feet. Thence along a curve to the right or left, as the case may be, of....degrees, a distance of....feet; thence on a course of....along a tangent from Station.... to Station....a distance of....feet, there being an off-set at the beginning and ending of the ....degree curve at....feet for a transition curve to connect the circular curve and tangent. (i) The derivation of the functions of the spirals

DIAGRAM



will be understood by following the explanation and diagram given below. The tables which follow obviate the necessity for any calculations, the best judgment being exercised in selecting the value of "O", and thereby fixing the length of the spiral.

Again, N. = 1.868 $\sqrt{\frac{O}{D}}$ nearly.

Example for O′ at quarter points of the transition curve, O′—$(\frac{1}{2})^{\frac{3}{2}}$ O = 1/160 where O = 10 feet, O′ = 0.625 feet. At $\frac{1}{8}$ point of curve, quarter point of half-curve, the off-set will be $\frac{1}{8}$ of the off-set at the quarter point) .078; at the $\frac{3}{8}$ point ($\frac{3}{4}$ point of half curve) it will be $3^3 = 27$ times this amount or 2.11 feet all for a total original off-set of ten feet opposite old "B.C."; half length of curve it will be five feet. In the Diagram, "D" is the old "B.C."; P is the new off-set "B.C." from which the circular curve is run (see rule "C" for position of point P.) The transition curve runs from A. to C. and is staked out on the ground from the off-sets given in the table.

Example: Given 120+42, Apex I = △ = 32° 20′,–6° curve. Therefore tangent of circular curve = 277 feet "B.C." = 117+65 "E.C." = 123+03.8. The super-elevation of the outer rail for the curve will be taken at four inches, to reach this elevation smoothly requires an approximate distance of at least 240 feet. Hence half length of transition curve should not be less than 120 feet. The nearest distance in the table is 130 feet, giving an off-set O of 3 feet. The new "B.C." (Point P., Rule C.), (tan. $\frac{1}{2}$ 1 x o) = 117+65–0.87 = 117+64.13. The new "E.C." will be 123+03.8+0.87 = 123+04.67. The "B.T.C." will be 116+34.13, the point of junction of transition curve with circular curve "P.J.C." = 118+94.13 The circular curve will run from this point to 121+74.67 where the spiral at the end of the curve starts the "E.T.C." is at Station 124+34.67.

The only stakes requiring attention during location are those at 117, off-set IN 0.15; 118 off-set OUT 0.49. Station 122 off-set OUT .018, 123+00 OUT 1.16; 124 IN 0.18 at the old "B.C." and "E.C." the spiral bisects the off-set, the hub will, therefore, be 1.5 feet in from the old "B.C."

TABLE.

Table of off-sets in from tangent out from curves for various values in Central off-set "O".

	Off-sets in Feet.....	0.5	1.0	2.0	3.0	4.0
	Half Length of Transition Curve.....	130′	186′	262	.....	.....
1° Curve.	30′	.002	.003	.001	.....	.....
	60′	.024	.016	.01	.....	.....
	90′	.082	.054	.036	.....	.....
	120′	0.192	.028	.085	.....	.....
	150′	.....	0.25	0.17	.....	.....
	180′	.....	0.43	0.2	.....	.....
	210′	.....	.....	0.51	.....	.....
	240′	.....	.....	.75	.....	.....
	Half Length of Transition Curve.....	93	130′	186	227	262
2° Curve.	30′	.008	.006	.004	.003	.002
	60′	.065	.048	.032	.026	.020
	90′	.....	.164	.108	.081	.071
	120′	.....	.384	.256	.192	.190
	150′	.....	.....	.50	.375	.33
	180′	.....	.....	.80	.74	.58
	210′	.....	.....	.....	1.17	1.02
	240′	.....	.....	.....	.....	1.51

Table of off-sets in from tangent out from curves for various values of Central off-set "O."

Off-sets in feet		0.5	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	
Half Length of Transition Curve		74	107	152	186	214	238	262	.....	.....	.....
	30′	.016	.01	.007	.006	.005	.004	.004	.....	.....	.....
3° Curve	60′	.13	.087	.054	.048	.043	.039	.03	.....	.....	.....
	90′	.....	.296	.185	.162	.148	.127	.10	.....	.....	.....
	120′	.....	.....	.51	.384	.351	.312	.26	.....	.....	.....
	150′	.....	.....	.....	.75	.68	.62	.50	.....	.....	.....
	180′	.....	.....	.....	1.29	1.18	1.05	.86	.....	.....	.....
	210′	.....	.....	.....	.....	1.88	1.70	1.54	.....	.....	.....
	240′	.....	.....	.....	.....	.....	.....	2.26	.....	.....	.....
Half Length of Transition Curve		65	93	130	160	186	206	227	245	262	.....
	30′	.02	.016	.012	.009	.008	.007	.006	.006	.005	.....
	60′	.....	.13	.097	.079	.064	.06	.053	.048	.04	.....
4° Curve	90′	.....	.....	.328	.263	.216	.198	.162	.163	.14	.....
	120′	.....	.....	.779	.633	.512	.487	.384	.386	.34	.....
	150′	.....	.....	.....	1.20	1.0	.93	.86	.79	.66	.....
	180′	.....	.....	.....	.....	1.73	1.65	1.48	1.36	1.15	.....
	210′	.....	.....	.....	.....	.....	.....	2.34	2.15	2.05	.....
	240′	.....	.....	.....	.....	.....	.....	.....	....	3.01	.....
Off-sets in Feet		0.5	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Half Length of Transition Curve		58	82	117	143	166	186	203	219	234	249
5° Curve	30′	.03	.02	.01	.01	.01	.01	.009	.009	.008	.007
	60′	.....	.19	.12	.11	.08	.08	.08	.07	.07	.06
	90′	.....	.....	.45	.37	.31	.27	.25	0.24	.22	.20
	120′	.....	.....	.....	.89	.74	.64	.61	.58	.53	.49
	150′	.....	.....	.....	.....	.....	1.25	1.17	1.10	1.05	.99
	180′	.....	.....	.....	.....	.....	2.26	2.04	1.93	1.83	1.70
	210′	.....	.....	.....	.....	.....	.....	.....	3.0	2.82	2.70
	240′	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Half Length of Transition Curve		52	74	96	130	152	169	186	201	212	227
6° Curve	30′	.04	.30	.03	.018	.014	.013	.012	.009	.009	.008
	60′	.....	.26	.24	.15	.108	.10	.096	.095	.094	.08
	90′	.....	.....	.....	.49	.37	.37	.32	.29	.28	.27
6° Curve	120′	.....	.....	.....	1.16	1.02	.89	.77	.71	.68	.64
	150′	.....	.....	.....	.....	.....	1.70	1.50	1.41	1.35	1.29
	180′	.....	.....	.....	.....	.....	.....	2.65	2.46	.234	2.22
	210′	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.50
	240′	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

The maximum grade rising eastwardly on a tangent will be 0.40% = 21.1 feet per mile; rising westerly the maximum grade will be 0.60% = 31.68 feet per mile. The maximum grade is to be used sparingly and only for the purpose of avoiding heavy work. *The best grade to be had in the country must be secured in every case.* On curves the rate of grade will be reduced in accordance with the rules for curve compensation.

LEVEL AT STATIONS.

29. Every effort will be required to secure a level track at stations and for 2,000 feet each side, particularly at terminal points, water stations, etc. Under no circumstances will a water tank or station be placed in a sag.

VERTICAL CURVES.

30. It is important that all changes in grade be made by a vertical curve of such length as will allow the longest train to pass from one rate of grade to another without the cars piling up against each other. With modern equipment,

the rate should not be greater that 0.1 feet per station, and this rate should be used in sags, on summits a greater rate of change may be used, but not to exceed 0.3 feet per station.

BRIDGES.

31. The following data will he required for every important bridge:

1st. Profile of crossing on a scale of 20 feet horizontal.

10 feet vertical per inch.

(a) High water mark (extreme flood height).

(b) Low water mark.

(c) Bottom of river or stream, giving nature of same.

(d) Depth to rock, if any, nature of material, etc., the information must be carefully and fully taken. Suitable boring and sounding appliances will be provided when required for this work. A thorough survey must be made and careful records of same taken.

(e) Alignment near the bridge site and the grade of same, if any; when possible a bridge should be level.

2nd. (a) Plan of the river on scale of 100 feet to the inch, with contour lines at 10 feet; vertical intervals for a considerable distance each side of the proposed crossing, the distance to be proportionate to the importance of the bridge. Indicate nature of material composing banks, bottom, etc.; for large important bridges the traverse should run a mile each way from the bridge site.

(a) Length of span suggested, proposed location of piers.

(b) Clearance required above high water mark.

(c) Shore protection required, if any.

3rd. Is it a navigable river, if so, what clear height is required to accommodate the traffic?

4th. Is the stream subject to freshets? Give velocity of current at high water. At low water. Is it subject to scour?

5th. What is the best way to reach the bridge site? Give nearest distance from railway station, or if only can be reached when the rails are laid on the railway.

6th How far must sand, of quality required, be hauled?

7th. How far must stone of suitable quality be hauled:

For (a) masonry? (b) cement?

State fully kind of stone, size and position of quarry proximity of gravel, etc.

WATER SUPPLY.

32. The importance of an abundance supply of pure soft water cannot be over-estimated. Hence, location Engineers will be particular to note available sources. Softness should be tested with soap. Scale forming material by boiling. Try to find a supply of suitable quality, that will flow by gravity to water tanks In doubtful cases send a sample securely packed to the Chief Engineer's office.

COMPUTATION OF EARTH WORK.

33 For comparing preliminary lines table of level sections may be used; in comparing location lines, accurate computation of earth work should be made, using Crandall's tables, or plotting up cross section note and computing from same.

COMPUTING OVERHAUL.

34 Overhaul will be computed in accordance with the method shown in the sample profile Plate C, and the explanations which follow.

PLOTTING AND COMPUTING OF HAUL.

The contract provides that the limit of free haul is to be 500 feet, and that all materials shall be paid for at schedule price per cubic yard per 100 feet overhaul. See Plate "C" for diagram of overhaul—cuts being shown in red, fills in blue.

For purpose of illustrating the method, take the cutting from station 139 to 145 and + 20; the quantities in each station and summation of same right and left are as shown in the following table:

Station.	Cu. Yd.	Summation from right.	Summation from left.
139	....	0	8696
140	272	272	8424
141	692	964	7732
142	1253	2217	6479
143	2464	4681	4015
144	2768	7449	1247
145	1229	8678	18
+20	18	8696	0

As the fill from Station 145 + 20 to the bridge must all come from the cut to the east, there is no object in plotting it otherwise than from the right to the left. Call each Division on the profile paper 100 cubic yards and plot over each Station the amounts shown opposite right and left. The curves joining the several points will cross each other and a perpendicular line from the intersection point will be centre of mass of the cut or the fill, as the case may be. Next, take a pair of dividers and set them to a distance of 500 feet on the profile scale. Find where the curves between the fill and cut are at this distance, draw a horizontal line, all below it comes within the 500 feet free haul. Next, take 600 feet in the divisers, join the points with a horizontal line; the distance between the 500 feet line and this latter line will give the number of cubic yards hauled 600 feet.

A further study of the cutting at Stations 117 to 121 plus 30, and the fill from 121 plus 30 to 130, will bring out clearly the extent of the haul, etc. In the above illustration as worked out, there still remains in the cutting, after the fill to the bridge is completed, 1,807 cubic yards, which will have to be hauled to the right, and upon inspection it will be readily seen that it all comes within the free haul limit.

Note the required shrinkage so as to provide sufficient material to make the embankment; note the borrow required to complete the embankment; also, if any waste, the disposition of same. Classification can also be noted on this diagram.

Show by arrows the direction the material was moved, and the name of the contractor, the date he began and completed his work, etc.

WATER POWER.

35. Locating Engineers will take pains to secure all information possible as to the water powers along the line of the railway or within reasonable distance thereof.

The data required to be the flow of the river, in cubic feet per second, the time of the year, the stage of the river, whether normal or otherwise; the head in feet, nature of bottom and banks, kind of dam required, with height of same; nature of river bottom; in general, such information as will enable an intelligent estimate to be made of the value of the power and the cost of de eloping it.

PEAT BEDS.

36. The presence of large peat beds along the line is to be noted; give the approximate area and depth, send in to the Chief Engineer's office samples of material.

GRAVEL PITS AND QUARRIES.

37. Particular attention is requested to the securing of good gravel pits and quarries, from time to time report on the quantity and quality of the material found along the line of the survey.

EQUATING VALUES.

38. Tables will be supplied from the office of the Chief Engineer giving equating values, viz.: Value of degree of curvature, foot of distance (for minor savings in length), foot of rise and fall, train mile cost, cost of pusher grade, locomotive to use for calculations, etc. Price to apply to units, etc.

DISCHARGE TICKET.

39. All men in the service of the Commission have signed contracts for definite periods of employment, subject to satisfactory service. In discharging a man, always give him a discharge ticket, Form No. 7, which is printed in triplicate. Be careful to fill out the reason for such discharge and to make everything clear and plain.

TRANSFER OF MEN.

40. Should it be necessary to transfer a man from one party to another, he should be given a discharge ticket for the time due him. As reason for discharge enter transferred to party No.... On reaching the party to which the person is transferred, the Engineer in charge will allow him time for travelling by the shortest and quickest route and his reasonable travelling expenses while en route.

RECEIPTS TO BE TAKEN.

41. Receipts in triplicate for all expenditure must be taken from the person to whom the money is paid.

ACCOUNTS TO BE CERTIFIED.

42. Whenever a service is rendered or materials are supplied to any party, the Engineer in charge of such party will secure accounts in triplicate from the person supplying such materials or rendering the service, and will stamp the accounts in triplicate with the proper stamp supplied for the purpose, and will promptly certify to the same and send them in with his monthly report to the District Engineer, who will approve same and forward to the Chief Engineer for approval.

PAY ROLLS.

43. All pay rolls are to be made out in triplicate on the first of every month, marking up against any particular person the deduction, if any and showing the balance due. Forwarding such roll duly certified to the District Engineer, who will approve same and forward them to the Chief Engineer for his approval, and to be accompanied by the deduction sheet, Form 59.

OUTFIT.

44. Camp outfit, supplies, etc., will be supplied to each party as per following list. For all parties where the outfit, etc., cannot be moved by wagon, a list for parties in settled country, where camp may be moved by wagon or sleigh, will be supplied on application.

CAMP OUTFIT FOR 18 MEN—BUSH CAMP.

2 Baking Reflectors.
3 Bake Dishes for same.
2 Frying Pans.
Nest of 6 Cook Pails, 14 qts. to 1 gal.
6 Graniteware Meat Dishes.
2 large Tea or Coffee Pots.
2 large Dish Pans.
2 Dippers, 1 qt.
2 doz. Soup Plates, graniteware.
2 doz. large Plates, graniteware.
2 doz. Tea Basins.
2 doz. Knives, iron handled.
2 doz. Forks, iron handled.
2 doz. Soup Spoons.
2 doz. Tea Spoons.
4 large Gravy Spoons.
2 large Meat Forks.
3 Butcher Knives.
6 yards Towelling, rough.
2 doz. Common Towels.
3 Pepper Dusters.
6 Wash Basins graniteware.
1 Grindstone, with iron handle (1½ x 12 in.).
1 doz. Chopping Axes (not over 3 lbs.).
1 doz. Axe Handles.
4 Zinc Pails.
2 Bake Kettles (14 in. to 16 in. x 4 in. high, tight lid).
1 Long Handled Shovel.
3 Boys' Axes.
2 Brush Hooks.
1 doz. Small Whetstones.
1 Meat Saw.
6 heavy Wire Pot Hooks.
1 Clock (alarm).
5 yards Oilcloth (table).
1 Drawing Knife.
1 Spokeshave.
1 Jack Plane, with extra chisel.
2 Scribes.
1 Gross 1¼-in. Screws.
200 feet ⅜-in. Cotton Rope.
3 balls Twine (coarse).
1¾-in. Auger.
1 1-in. Auger.
1 Screw Driver.
1 pair Wire Cutting Pliers.

1 small bundle Copper Wire (200 feet).
6 tin Candlesticks.
Fishing Tackle (trolling and pole lines).
1 Letter Book and Portable Press.
1 Hand Hammer.
1 bundle Stove Pipe Wire (45 feet).

---

3 Bell Tents, 14′ diam., 3′ wall and sod-cloth, 10 oz.
1 House Tent, 10 x 16, 5, 5′ wall and sod-cloth, 10 oz.
1 House Tent, 12 x 18, 4′ wall, and sod-cloth, 10 oz.
1 Shelter Tent, 9 x 9, 10 oz. duck.
18 Canvas covers, 6 x 8, 8 oz. duck.
3 Canvas covers, 8 x 12, 10 oz. duck.
1 Boiler Plate Cook Stove (to be selected).
5 Sheet Iron Heating Stoves.
2 Levelling Rods.
1 Stationery Box.
20 pairs Snow-Shoes (for winter work).
12 Toboggans (for winter work).

SESSIONAL PAPER No. 123

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

Food Supplies per man per Month and for Parties of Eighteen and Twenty-four Men.

Articles	Amount per Man	Amount per 18 Men	Amount per 24 Men
Apples (evap.)	1¾ lbs.	31 lbs.	42 lbs.
Apricots	1¼ "	22 "	30 "
Alspice	½ oz.	9 oz.	¾ "
Bacon	15 lbs.	270 lbs.	360 "
Beans	8 "	145 "	195 "
Butter	4¾ "	85 "	115 "
Biscuits	6 "	110 "	145 "
Baking Powder	¼ "	4½ "	6 "
Beef (corned)	8 "	145 "	195 "
Barley	½ "	9 "	12 "
Beef (extract)	½ "	9 "	12 "
Corn Meal	1½ "	27 "	36 "
Coffee	1 "	18 "	24 "
Corn Starch	1 "	18 "	24 "
Candles	2 "	36 "	48 "
Currants	1 "	18 "	24 "
Codfish	1½ "	27 "	36 "
Cheese	1¾ "	31 "	42 "
Cream (condensed)	½ cans = 1½ "	27 cans = 27 "	36 cans = 36 "
Corn (canned	¾ " = ¾ "	13 cans = 13 "	18 " = 18 "
Essence (lemon	1/9 bottle= 2/9 oz.	2 bottles = 4 oz.	3 bottles = 5⅓ oz.
Essence (vanilla)	1/9 " = 2/9 "	2 " = 4 "	3 " = 5⅓ "
Essence (ginger)	1/9 " = 2/9 "	2 " = 4 "	3 " = 5⅓ "
lour	37½ lbs.	675 lbs.	900 lbs.
Ginger	½ oz.	9 oz.	¾ "
Ham	10 "	180 lbs.	240 "
Hops	1/18 "	1 "	1½ "
Jam	1½ "	27 "	36 "
Lime Juice	½ pt.	9 pts.	1½ ga.
Lard	2 lbs.	36 lbs.	48 lbs.
Molasses	3 pts.	7 gals.	9 gals.
Milk	2 cans = 2 lbs.	36 cans = 36 lbs.	48 cans = 48 lbs.
Matches	2/9 bxs.	4 bxs.	5⅓ bxs.
Macaroni	¼ lbs.	4½ lbs.	6 lbs.
Mustard	2 oz.	2¼ "	3 "
Marmalade	½ lbs.	9 "	12 "
Nutmegs	¼ oz.	4½ oz.	6 oz.
Oatmeal	5 lbs.	90 lbs.	120 lbs.
Onions	2 "	36 "	48 "
Pork	13 "	216 "	290 "
Peas	3 "	54 "	72 "
Prunes	2 "	36 "	48 "
Potatoes (dessicated)	2 lbs.	36 lbs.	48 lbs.
Pepper	1¾ oz.	2 "	2⅝ "
Pickles	¾ pt.	1¾ gals	2¼ gals
Peaches (dried)	2 lbs.	36 lbs.	48 lbs.
Rice	1¾ "	31 "	42 "
Raisins	1 "	18 "	24 "
Sugar (white)	10 "	180 "	240 "
Syrup	1 pt.	2¼ gals	3 gals
Salt	1½ lbs.	27 lbs.	36 lbs.
Soap (washing)	1½ "	27 "	36 "
Soap (toilet)	1 cake	18 cake	24 cks.
Soda	1/16 lbs.	1⅛ lbs.	1½ lbs.
Soup (condensed)	½ "	9 "	12 "
Tea	2 "	36 "	48 "
Tomatoes	1 can = 2½ "	18 cans = 45 "	24 cans = 60 "
Tobacco (chewing)	¾ "	13 "	18 "
Tobacco (smoking)	1½ "	27 "	36 "
Tapioca	½ "	9 "	12 "
Vinegar	½ pt.	9 pts.	1½ gals
Vegetables (compr'd)	½ lbs.	9 lbs.	12 lbs.
Worcester Sauce	½ bottle = ¼ pt.	9 bottles = 4½ pts.	12 bottles = 6 pts.
Yeast	½ bx.	9 bxs.	12 bxs

The following named articles may be selected by the District Engineer in quantities varying from the above list but retaining the same relative amount of meat and vegetable food as given in the list:—

Bacon, Pork, Corned Beef, Ham, Peas, Rice, Oatmeat, Cornmeal, Buckwheat Flour, Condensed Soup, assorted Jam and Marmalade.

If District Engineers find from further experience that too liberal an allowance of any article is shown on this list, they should reduce their orders accordingly and advise Headquarters. Greater proportions than shown on list should not be ordered without special authority.

Assistant Chief Engineer's Office,
Ottawa, Dec. 19th, 1905.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

Medicine Chest Containing Medical Equipment for Engineers in Charge of Parties.

One tin box with lock, key and strap, of neat size, to contain the following:
Bandages, gauze, 2″ wide, 6 yards long, ½ doz.
Bandages, gauze, 3″ wide, 6 yards long, ½ doz.
Carbolized wool in ¼ lb. packages, 1 lb.
Carbolized lint, in ¼ lb. packages 1 lb.

Housewife made of canvas and tied with a tape; the inside of the housewife to have straps to hold the following:

A. Scissors, straight, with antiseptic lock; length 5″.
B. Bistoury, curved, sharp and scalpel with plain spring.
C. Needles, surgeons, in antiseptic oil, six only,
D. Catgut, No. 0, 1 and 2, in antiseptic oil, one bottle.
E. Silk, carbolized, No. 1, 2, and 3, each, one reel.
F. Pins, safety, size 1 ½, one doz.
" " common, three doz.

Field tourniquet, rubber tube with clasp.
Zinc ointment, ¼ lb. pot.
Blue ointment ¼ lb. pot.

Poroplastic felt, for splints, one piece the length of the tin containing box and ten inches wide.

Surgeons rubber adhesive plaster, 7″ wide and one yard long.

Tablets, Bi-chloride of mercury, antiseptic..25 labelled "POISON" and directions on bottle.

Aromatic spirits Ammonia, labelled with dosage 3 oz.

One tin pill box with cover, hinges and clasp, large enough to contain the following bottles, packed closely in compartments to prevent breakage. The inside cover of the pill box to have the directions for use of the remedies enclosed. These directions to be printed or typewritten.

No. 1. Rheumatic pill.....100
Sodium Solicylat.....gr. 7½
Vinum Colchi. min.....V
Sodium Bicarbonate.....gr. 2·
Oil of Wintergreen.....

No. II. Pill, lead and opium, for diarrhoea.....100
Acetate of lead.....gr. 2
Powdered opium.....gr. $\frac{1}{3}$
No. III. Pill, sulphate of quinine...gr. 5.....100
No. IV. Pill, strychnia sulph...gr. 1/60.....100
No. V. Pill, morphia sulph...gr. $\frac{1}{4}$.....100
No. VI. Cough Tablets.....200
Ammon. carb.....gr. 1
Pulv. squills.....gr. $\frac{3}{4}$
Pulv. senegae.....gr. $\frac{3}{4}$
Tinct. camph. Co.....M. V.
Terpin hydrate.....gr. 1
No. VII. Cathartic No. 1.....100
Pil. Cath. Co.
No. VIII. Cathartic No. 2.....100
Calomel.....gr. $2\frac{1}{2}$
Sodii bicarb.....gr. $2\frac{1}{2}$
No. IX. Antifebrile tablet.....100
Phenacetine.....gr. V
Caffeine at.....gr. II
Antiseptic powder (Jeys) with plain tin shaker.....oz. I.
Perry Davis' Pain Killer.....$\frac{1}{2}$ doz.
Minard's Liniment.....$\frac{1}{2}$ doz.
Carbolic Acid Ointment.....$\frac{1}{4}$ lb. box

Directions for the use of medicines in a pill box to be pasted on inside of tin cover also on a loose card in inside of box.

RHEUMATISM. Pain and swelling of joints with fever.
Use one pill of No. I every three or four hours. Keep warm. Wrap inflamed joint in wool. Bowels well moved by two pills of No. VIII.

DIARRHŒA. Take one or two pills of No. VII or VIII in four hours afterwards take one pill of No. II and repeat in four hours if diarrhœa persists.

CONSTIPATION. One or two pills of No. VII or VIII at night.

COUGH. One pill No. VI every three hours.

FEVER. One pill No. IX every four hours.

PAIN. One pill No. V. every four or six hours—not over four pills in twenty-four hours.

FAINTING and SUNSTROKE. Revive with ammonia. Give one pill No. IV. every three hours. If fever use No. IX.

DRESSING WOUNDS. Dissolve one-half of one antiseptic tablet in water, bathe wound, dust in antiseptic powder and apply lint and bandage.

TO STOP HEMORRHAGE. Wind tourniquet around limb above the joint higher up than the wound.

FOR LICE. Wash well with soap and water. Cover surfaces with blue ointment and change underclothes.

FRACTURES. Soak felt in hot water. Then cut to fit the limb.

Office of the Assistant Chief Engineer.
December 22nd, 1905.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

Contents of Cache Keeper's Case

One Pill Box containing:—
No. 1. Rheumatic pill.....100
Sodium Solicylat.....gr. 7½
Vinum Colchi, min.....V
Sodium Bicarbonate.....gr. 2½
Oil of Wintergreen.....Q.S.
No. II. Pill, lead and opium, for diarrhoea,.....100
Acetate of lead.....gr.2
Powered opium.....gr. ⅓
No. III. Pill, sulphate of quinine...gr. 5.....100
No. IV. Pill, strychnia sulph...gr. 1/60.....100
No. V. Pill, morphia sulph...gr. ¼.....100
No. VI. Cough Tablets.....200
Ammon. carb.....gr. 1
Pulv. squills.....gr. ¾
Pulv. senegae.....gr. ¾
Tinct. Camph. Co.....M. V.
Terpin. hydrate.....gr. 1
No. VII. Cathartic No. 1.....100
Pil. Cath. Co.
No. VIII. Cathartic No. 2.....100
Calomel.....gr. 2½
Sodii bicarb.....gr. 2½
No. IX. Antifebrile tablet.....100
Phenacetine.....gr. 5
Caffeine At.....gr. 2
Absorbent cotton.....½ oz.
Bandages, gauze, 3″ wide, 6 yards long.....¼ doz.
Lint, absorbent.....1 oz.
Adhesive Plaster.....1 yd.
Carbolic Acid Ointment.....2 oz.
Office of the Assistant Chief Engineer.
December 22nd, 1905.
3 pads Letter Head Paper.
6 Penholders.
30 large Envelopes.
12 Pay-Roll Forms.
100 small Envelopes.
1 Requisition Book.
6 Scribbling Pads.
1 Diary, 1906.
4 HHHH Pencils.
1 Canadian Almanac.
12 HH Pencils.
12 Transit Books.
12 HB Pencils.
6 Level Books.
150 feet Tracing Profile Paper
150 feet Tracing Paper.
10 yards Tracing Cloth.
30 feet Drawing Paper.

24 Thumb Tacks.
1 Stencil for rods.
½-pint mixed Carmine Red Paint.
1 pint White Paint.
1 pint Black Paint.
2 Account Books.
2 sticks India Ink, good quality, water colors (red and blue).
1 box Hub Tacks.
12 copies of Form 12.
1 sheet Blotting Paper.
2 lbs. Red Keel
6 blue Oil Chalks.
1 set Contract Forms.
24 Paper Fasteners.
1 package Pins.
3 Ink and Pencil Erasers.
3 Soft Rubber Erasers.
9 Rubber Tops for Pencils.
2 Aneroid Barometers.
1 Hand Level.
1 Compass.
2 set Squares.
1 Protractor.
1 Steel Straight Edge, 30″.
2 sets Rod Papers.
½-pint LePage's Glue.
1 pint bottle Sizing.
1 pint bottle Varnish.
1 100′ Brazed Link Chain.
3 Square Links.
2 50′ Chesterman Tapes, reading to 10ths.
3 Brushes for Paint, small and stencil use.

CONSTRUCTION.

45. Ten to twelve miles will usually be allotted to each Resident Engineer.

It will be the duty of the Resident Engineer immediately on reaching his residency to study carefully the specifications, contract and plans, so as to be prepared to decide promptly all questions that may arise within the scope of his authority, and in order to ensure this end, he will confer with his District Engineer on all points that seem to him to require explanation. He will inform himself fully of all the rules and matter contained in these instructions, and conform his work thereto in every particular. He will do all the instrumental work required on his residency in order that the contractor may rapidly and satisfactorily carry on the work in accordance with the plans, specifications and contract. He will make up monthly and final estimates of all work done in his residency in accordance with Form Nos. 4 and 5.

He will treat contractors with courtesy and will give them the aid necessary to expedite the work, and see that the conditions called for in the plans, specifications and contracts are complied with.

RESIDENT ENGINEER REPORTS.

46. The Resident Engineer will report to the Division Engineer, if there is one, otherwise to the District Engineer.

SUPPLIES.

47. The Resident Engineer will by requisition through his immediate superior, obtain the following supplies; and in future requisitions, maintain such list at all times while the work is under way:

2 pads Letter Heads.
12 No. 303 Pens.
6 No. 170 Pens.
24 Assorted Pens.
1 bottle Water-Proof (Higgins' Chin-Chin) Ink, black.
1 paper Pins.
50 large Envelopes.
100 small Envelopes.
1 bottle Writing Fluid.
1 bottle Copying Fluid.
1 stick Japanese Ink.
1 box Assorted Rubber Bands.
1 bottle Water-Proof (Higgins' Chin-Chin) Ink, blue.
1 bottle Water-Proof (Higgins' Chin-Chin) Ink, red.
Windsor & Newton's Colors—1 cake Blue.
1 cake Carmine.
1 cake Cobalt Blue.
1 cake Vermillion.
1 cake Chrome Yellow.
1 cake Venetian Red.
1 cake White.
1 cake Olive Green.
1 cake VanDyke Brown.
1 cake Chrome Orange.
1 cake Paynes' Gray.
1 cake Scarlet Lake.
1 cake Burnt Sienna.
1 box Paper Clips.
1 copy Instructions.
1 Levelling Rod.
2 Pickets.
2 3½-lb. Axes, with handles.
5 lbs. Red Keel.
6 Blue Oil Crayons.
1 pot, ½-pint, Red Paint, with brush.
1 copy Specification Contract.
5 yds. Plate A Profile Paper.
5 yds. Plate A Tracing Profile Paper.
5 yds. Tracing Cloth.
5 yds. Cross Section Paper, 10ths.
5 yds. Tracing Paper.
5 yds. Duplex Manilla Paper.
1 100 Roe Aluminum Plated Steel Band Chain.
2 50′ Chesterman Metallic Tapes, with 2 extra Fillers, divided feet and 10ths.
3 Sheets Blotting Paper.
2 Transit Books.
1 large Cross Section Book, office record.
6 3H Pencils.
3 Penholders.
12 Pay Rolls.

1 Portable Roll Copying Press.
1 lb. Tinned Tacks.
4 Level Books.
2 Cross Section Books.
3 6H Lead Pencils.
6 No. 3 Pencils.
24 Estimate Sheets.
12 Scratch Pads.

SIZE OF PARTY.

48. Resident Engineer will be allowed a rodman, tapeman and one extra axeman. If more help is required, owing to heavy work, he will ask the District Engineer to supply same.

NOTICES TO BE SENT.

49. The Resident Engineer on his arrival at his residency will promptly notify his Division and District Engineer and the Chief Engineer, stating his post office, telegraph and telephone address.

WORKING PROFILE.

50. The Resident Engineer will obtain from the District Engineer data from the location profile to make up a working profile on Plate A profile paper, similar in every way to the sample working profile herewith. This working profile will show in pencil the approximate quantities and contemplated overhaul.

BOOKS REQUIRED.

51. The resident Engineer will keep a transit book, level book, field and office cross section book, Form No. 8, bridge book, pile recorder's book, memorandum book, and office diary.

On the fly leaf of each book write the title, give the number of the residency, the letter of the District, name of the Engineer in charge and address thus:

"Bridge Book."
"Residency No. 6, District A."
"John Jones, Resident Engineer."
"Grand Falls, N.B."

Do not mark the cover, number the pages, date your entries, index your book, be sure and enter in the book all original measurements, do not transcribe notes from other sources, only original notes should appear. In the Transit Book should be entered all notes, reference hubs, land and other lines, etc., so as to have a complete record of the alignment and land boundaries, names of owners, occupants, etc. In the Level Book all centre line levels will be entered up, bench marks, etc.

In the Cross Section Book, Form No. 8, all original entries of all cross sections will be entered. All original notes must be set down in the book in the field. The customary way of entering cross section notes usually followed in American practice wherein the original observations are not entered, but instead the cut or fill, will not be allowed. Make your entries continuously, leaving enough blank pages to summarize everything in its proper place. Index each Section Station by Station, keeping the quantities in each mile separate. Never erase a line, if an error has been made draw lines across it and write the words "Cancelled erroneous"; if notes are continued on a succeeding page refer to it and on that page write the words "forward from page."

LENGTH OF SECTION.

52. Sections will usually be one mile in length. Give the name of the contractor on each section, note the beginning and ending stations of their work, with dates of such beginning and ending of work. Plot all the excavations on cross section paper, 10 feet to one inch; each day's cross section work to be plotted, and the quantities computed the same day the measurements are taken, with the area of the section inked in. On this plotted section as the excavation is made note accurately the character and classification of the materials found in the cut. See sample sheet Plate E; the cross section book should also contain the monthly estimate of grading, with the volume excavated each month. The cross section sheet should be colored with the proper color for the month showing the area excavated. So in like manner the progress profile should have the volume colored with the appropriate color.

BRIDGE BOOK.

53. In the standard bridge book the notes of bridges, culverts and other structures, as well as drainage and other special matter, should be entered. On the left hand page, all bills of timber, piling and quantities should be entered, and on the right hand page a sketch of the structure, showing a ravine section; full notes of pile driving as per form below shall be taken, also kind of material penetrated; in case of masonry or concrete culverts or other structures, sufficient dimensions must be shown to enable the quantities to be calculated; describe fully and carefully the exact kind of material the structure is founded upon. Give the quantities, classification and disposition of the excavated material. Particular care is required to insure absolutely safe foundations. No chance will be taken; in case of doubt consult the District Engineer. Under each structure enter the name of the contractor and the foreman in charge of the work, the date in which work started and ended. The Bridge Book, properly filled up, will be returned to the District Engineer as a final estimate on the completion of the works therein entered.

PILE AND TRESTLE BRIDGES.

54. In the construction of pile and trestle bridges, a competent Inspector will be supplied, whose duty it will be to watch the driving of piles at all times and to keep a record of all piles driven. The Inspector shall require piles to be driven such depth as will make them secure against being washed out by scour, and in accordance with the clause of the specifications relative to pile-driving. See Section of Specifications 145.

The record of all pile and trestle bridges shall be kept in a book ruled and headed as per sample herewith. For convenience in designating any particular stick of timber, he will call the first bent nearest to Moncton, Panel A; the second bent and span, Panel B, etc. Piles, posts, stringers, guard rails, will be numbered from left to right (i. e, south to north) and the bridge ties will be numbered in the same direction as the letters of the panels. The position of the bridge will be designated by the station and plus of its beginning and end—and the number of the same. In accordance with the above plan, it is easy to understand the location of a timber, as pile B3—Stringer A3 or bridge tie 38, as the case may be. The record kept by the Inspector must show the depth to which each pile is driven, the depth by the last five blows of the hammer and the depth by the last blow. The form of this record to be as below.

Bridge No. 10 } Weight of hammer, 3,000 lbs. Steam hoist, quick actions.
Stations 160+60 } or as the case may be.

PANEL A.

Pile Wing	Deep.	Last 5 Blows.	Last 3 Blows.	Fall of Hammer.
1	8 ft.	2 ft.	3 in.	28 ft.
2	9 ft.	2½ ft.	5 in.	28 ft.
1	14 ft.	1 ft. 3 in.	½ in.	30 ft.
2	14½ ft.	2 ft. 0 in.	1½ in.	29 ft.
3	13 ft.	1 ft. 6 in.	1 in.	30 ft.
4	15 ft.	2 ft. 0 in.	2 in.	30 ft

PANEL B.

PANEL C.

REMARKS.

The soil at this bridge is sandy at a depth of about 13 feet, below grade the piles strike a hard stratum of material with which piles cannot be driven more than 2 or 3 feet.

I had the depth to hard material also tested with water jet.

55. This record book of the Inspector will be turned over to the Bridge Engineer, who will then make up a complete record for each bridge in form as shown below, in which (a) represents the height of pile from the surface of the ground to the top of cap timber, and (b) represents the length of the pile below the surface of the ground. Following the record of the piles there must be a complete bill of piles and other material used in the construction of the bridge, and a memorandum of any facts of interest or importance connected with the situation of the bridge or its surroundings. In this record and in their proper place, all timber culverts and cattle guards must be entered, with description, dimensions and bill of material; also, all truss bridges, with location, description, and dimensions and bill of material in the floor system.

Bridge No. 10. Station 160 + 60.

PILE.

Panel. A	1 a = 6½ ft. b—14′	2 a = 7′ b—14½	3 a = 8½′ b—13′	4 a = 9′ b—15′
B				
Wing Pile				

BILL OF PILES USED.

159 16
78
20
40

REMARKS.

This is a pile bridge. The piles are driven in sandy soil, striking a stratum of hard pan at a depth of 20 feet, below the Cap timber.

BILL OF MATERIAL.

Pcs.	Size.
Stringers	8″ x 16″ x 26′
Caps	12″ x 12″ x 14′
Guard Rails	8″ x 9″ x 16′
Sway Braces	3″ x 10″ x 20′
Retaining plank	—600′ B.M.
Packing bolts.	
G. R. Braces	
Drift Bolts	
Spools	
Washers	

FORCE RETURNS.

56. The Resident Engineer will secure force returns from the contractor once a week; this return shall be taken personally by some person in the employment of the Commissioners, and must be verified with the contractor's time book. It will show the number of men employed each day, the number of teams, hoisting engines, derricks, etc., all classified as called for in Form 54.

Under remarks note any special information. At the end of each month summarize the force returns giving daily average and total days' work, average wages paid for men and teams, all the information called for in Form No. 55. Send one copy to the District Engineer's office and one copy to the Chief Engineer, Ottawa, Ontario.

Under remarks briefly state the progress of the work in each mile, the location of pile driver, steam shovel, etc., and station at end of track, etc.

MONTHLY PAY ROLLS.

57. On the first day of every month all pay rolls are to be made out, with deductions, if any, in triplicate, on Form No. 143.

Personal expenses statements are to be made out on Form No. 22, in triplicate. Expense Account

All bills are to be rendered in triplicate, to which certificate of receipt of goods or service, as the case may be, shall be attached. Bill

Approximate monthly estimates in triplicate will be prepared on Form Nos. 4 and 5. Estimate

Progress profile will be made up in accordance with sample sheet. Progress Profile

All to be certified to and signed by the Engineer in charge and forwarded by first mail to the District Engineer who will approve same and forward to the Chief Engineer.

CHECK ALIGNMENT.

58. The Resident Engineer on taking charge of his residency will as quickly as po sible check all curves, spirals, tangents, run check levels over the residency, reporting at once to the District Engineer any errors found. He will reference all B.C., E.C. or other points, B.M's etc.

LOCATION STATIONS TO BE PRESERVED.

59. The final location stations are to be maintained throughout the work, and all records must conform to them. Should errors or discrepancies be found note the amount, long or short, giving its correct length, but preserve the station number. The track chaining must also agree with the location stations.

MILE POSTS.

60. The station for each mile post will be given the Resident Engineer, and the beginning and ending of mile thus shown must be maintained throughout the work in all records. All material excavated from cuts, borrow pits, ditches, etc., must be estimated on the mile where such material was excavated. The cost of every item of work on each mile must be kept separate, so that if material is hauled from one mile to another it must be so designated in the book, showing such mileage cost. In case a borrow pit is opened on one mile and the material goes to another, such excavation will be charged against the mile where the earth is placed in the embankment.

PROGRESS PROFILE—HOW COLORED.

61. A progress profile is to be used as a monthly progress report of work done, and will be prepared on Plate A profile paper, in every respect similar to the sample sheet Plate E, and will be forwarded as stated in Section 58. It will be returned to the Resident Engineer each month in time for him to post up for the month. Show in colors for the given month, as below, the excavations moved and embankment placed. Show the index of these colors under the title in the profile. For January, Cobalt blue; February, vermillion; March, chrome yellow; April, Venetian red; May, white; June, olive green; July, Vandyke brown; August, Antwerp blue; September, chrome yellow; October, Payne's grey; November, scarlet lake; December, burnt Sienna.

Show on the profile the direction the excavation is being hauled by arrows and by plotted haul. Note above each structure in ink, the date work started

and ended, at what bridge the pile driver is working, end of track, etc; give the contractor's name, and such other data as will plainly indicate the progress of the work.

SUPER-ELEVATION OF OUTER RAIL ON CURVES.

62. As all curves 1° and over will have their ends eased off with transition spiral curves, the tangents will be level. The super-elevation will be put in on the spiral gradually increasing with the increased radius of the spiral, the whole amount of the super-elevation called for in the table below to be put in on the circular portion of the curve.

TABLE OF THE SUPER-ELEVATIONS OF THE OUTER RAIL ON CURVES.

Degree of Curve.	Amount of Super-Elevation of Outer Rail.	Distance to Run Out.
0°—30′	$\frac{3}{4}$″	45 feet
1°—00′	1, †	60 "
1°—30′	$1\frac{1}{4}$″	75 "
2°—00′	$1\frac{1}{2}$″	90 "
2°—30′	$1\frac{7}{8}$″	$112\frac{1}{2}$ "
3°—00′	$2\frac{1}{4}$″	135 "
3°—30′	$2\frac{5}{8}$″	$157\frac{1}{2}$ "
4°—00′	3, ″	180 "
4°—30′	$3\frac{3}{8}$″	$202\frac{1}{2}$ "
5°—00′	$3\frac{3}{4}$″	225 "
5°—30′	$4\frac{1}{8}$″	$247\frac{1}{2}$ "
6°—00′	$4\frac{1}{2}$″	270 "

STAKING OUT WORK.

63. As soon as possible the cross sections should be finished up. Plot each cross section and calculate its area the same day. All work must be staked out, ditches, creek diversions, right of way, berms, etc.; set stakes for all excavations and embankments to sub-grade, as shown on the grade line of the profile. Stake out bridge ends as shown on masonry plans, et Use good strong stakes, well driven; mark the proper station and plus on the side from the roadbed and the cut or fill on the back; mark the centre stake likewise. Cross section curves at least every fifty feet, unless the surface is practically level.

DITCHES.

64. Catchwater or surface ditches shall be staked out and be excavated at the same time as the cuts are opened; they should be neatly cut, placing the material in the embankment if required to make the fill, otherwise on the lower side in a uniform manner. Ditches should not be less than eighteen (18″) inches deep and two (2′) feet wide at the bottom, with side slope of $1\frac{1}{2}$ horizontal to 1 vertical, and should be at least ten feet away from the edge of a cut. Secure a good grade to allow the water to run away freely. Keep the outlet away from the toe of the embankment so as not to endanger same. All ditches must be left clean by the contractors.

DANGEROUS TREES.

65. The Resident Engineer will specially mark all leaning trees that are liable to fall across the telegraph line, or that may fall across the right of way, standing outside thereof, and will see that they are cut down and removed as called for in the specifications, Clause 7.

LARGE BLASTS.

66. Under Clause 13 of the specifications large blasts are restricted. On hill side work the tendency of such large blasts is to throw material to waste. If it is required in an adjoining bank, the contractor must supply free of cost for every cubic yard so wasted and one-half cubic yards of other suitable material for the bank.

PUBLIC AND FARM ROADS.

67. The Resident Engineer shall take particular care to insure that, at all public and farm road crossings at all times, a safe crossing is in good order; that the contractor takes all reasonable precaution to protect the public from injury due to his operations, and will hold the contractor to a strict account in this particular matter.

CLEARING.

68. The specifications must be closely observed; dead or leaning trees within the limits called for in the specifications must be cut down and removed, the right of way must be left clear. *Great care must be taken in burning brush to see that all the Provincial Fire Regulations are observed*, and every precaution must be insisted upon to insure the protection of the forest from fires. **Fire in Bush**

GRUBBING.

69. See that all grubbing is burned up and that the specifications are strictly adhered to. Grubbing will not be estimated in cuttings over four feet in depth (see Clause 11 of specifications).

CENTRES.

70. Resident Engineers will give centres in all cuttings from time to time to ensure the contractor excavating to the required lines and slopes, and will see that the slopes are left clean and true. Projecting or dangerous rocks on slopes must be removed. Slides of rock loose or solid must be carefully guarded against. **Projecting Rocks Slide**

BACKFILLING ROCK CUTS.

71. Backfilling in rock cuts must not be done until the required excavation one foot below grade is finished. The material used shall be broken stone, or coarse, clean gravel.

EMBANKMENTS.

72. Embankments are to be built of the full width and slope called for in the specifications. In setting out formation width, make proper allowance for subsidence as called for under Section 39 of the specifications. Embankments up to 16 feet in height will be 16 feet wide at formation level, beyond this height 18 feet wide, side slope for earth 1½ to 1, for rock 1 to 1.

BORROW PITS.

73. Borrow pits will be staked out when and where required; they must be left clean and neat with slopes of 1½ horizontal to 1 vertical, and must not be excavated closer to right of way lines than three feet and not closer to the toe of embankments than the distance called for under Section 30 of the specifications. Where possible they should always be left so that they will drain through the nearest opening.

FINISHING STAKES.

74. Resident Engineers will set accurately, square strong stakes at each station, marking the toe of the embankment, correct as to finished levels and line, and will see that the embankments are graded so that when full settlement takes place they will conform to such stakes, and that the cuttings are excavated cleanly and neatly to the full lines.

STATION GROUNDS.

75. Resident Engineers will secure plans of station grounds and will not allow any borrowing to be done within the limits of the site. Tracks and buildings, drains, etc., will be accurately located and staked as shown on the plan.

TRACK CENTRES.

76. Track centres will be accurately set. Stations on tangents to be every 100 feet, on curves every 50 feet. Mark the beginning of the adjusted curves centres at 30 feet intervals on same, also the ending of the spiral; rails must be laid with broken joints; in passing around curves shorter rails will be provided in order that the centre of one joint shall, as near as may, be opposite the centre of the opposite rail. Rails should not be cut. Track must be fully spiked as it is laid and the spikes must be set vertical, and driven home s › closely as to hold the rail firmly to the tie, but not so hard as to break the head of the spike. The tracks must be gauged as spikes are driven at "joints," "centres", and "quarters", and no excuse will be taken for inaccurate gauging. On straight lines track will be gauged to 4 feet 8½ inches. On curves, in accordance with the following, viz:

1°, curve = 4 ft. 8⅝ in,; 2°, 4 ft. 8⅝ in,; 3°, 4 ft. 8¾ in.; 4°, 4 ft. 8¾ in.; 5°, 4 ft. 8¾ in.; 6°, 4 ft, 8⅞ in.; 7°, 4 ft. 8⅞ in.; 8°, 4 ft. 8⅞ in.; 9°, 4 ft. 9 in.; 10°, 4 ft. 9 in.

The joints must be firmly secured in place by the full number of bolts well drawn up, and special attention should be paid to the adjustment of any nut lock device which may be used.

Ballast Grades

Ballast grades will be set and the top of the rails must conform to the level called for by them. Particular care is demanded in packing the ties; the tamping must be thorough, the tie thoroughly supported throughout, the space between the ties packed full and the shoulder at the end of the tie as called for in specifications, and cross sections of same. The slopes to be neatly and exactly laid to that called for. Particular care will be taken to set the ballast grade stakes on curves to give the proper super-elevation called for, the inner rail being kept to the true grade. On spiral curves the super-elevation will be gradual and proportionate to that on the circular curve, the tangents being level.

SWITCHES.

77. Special attention should be given to the laying out of switches, turnouts and frogs. The frogs, of angles of 6° 22′ and those of 9° known as number 9 and number 6½, only will be used.

All turnout curves are considered as beginning at the fixed end of the slide rail, and all Engineers must make their calculations for determining the position of head-block and point of frog on this basis. Sidings at different distances from the main track will be located, in the absence of special instructions, according to the following table, the turnouts being from straight lines.

Table Showing Alignment of Sidings.

Distance from Siding to Main Track, Centre to Centre	Turnout Curve		Length of Tangent	Curve Returning Parallel with Main Track	
	Degree	Length		Degree	Length
12 ft.	7°, 30′	95.8 ft.	.....	7° 30′	95.8 ft.
13 ft.	7°, 30′	99.7 ft.	.....	7° 30′	99.7 ft.
14 ft.	7° 30′	103.4 ft.	.....	7° 30′	103.4 ft.
15 ft.	7°, 30′	107.1 ft.	.....	7° 30′	107.1 ft.
16 ft.	7°, 30′	110.7 ft.	.....	7° 30′	110.7 ft.
17 ft.	7°, 30′	114.1 ft.	.....	7° 30′	114.1 ft.
18 ft.	7°, 30′	117.4 ft.	.....	7° 30′	117.4 ft.
19 ft.	7°, 30′	120.0 ft.	1.13 ft.	7° 30′	120.0 ft.
20 ft.	7°, 30′	120.0 ft.	7.52 ft.	7° 30′	120.0 ft.
22 ft.	7°, 30′	120.0 ft.	20.31 ft.	7° 30′	120.0 ft.
24 ft.	7°, 30′	120.0 ft.	33.09 ft.	7° 30′	120.0 ft.
26 ft.	7°, 30′	120.0 ft.	45.88 ft.	7° 30′	120.0 ft.
28 ft.	7°, 30′	120.0 ft.	58.66 ft.	7° 30′	120.0 ft.
30 ft.	7°, 30′	120.0 ft.	71.45 ft.	7° 30′	120.0 ft.
40 ft.	7°, 30′	120.0 ft.	135.38 ft.	7° 30′	120.0 ft.
50 ft.	7°, 30′	120.0 ft.	199.30 ft.	7° 30′	120.0 ft.
60 ft.	7°, 30′	120.0 ft.	263.23 ft.	7° 30′	120.0 ft.

The ends of switch ties must be laid off to a line parallel with the nearest rail. Guard rails opposite frogs shall be cut twelve feet long and bent to a standard pattern upon formers. The gauge of track of all turnout leads shall be 4′, 8⅞″, and this width must extend from the fixed end of the slide rails to the heel of the frog.

BUILDINGS.

78. The location of all buildings will be decided in the office of the Chief Engineer, and the Bridge and Building Engineer will receive instructions in regard to location. Special care must be taken in the laying out and construction of foundations, and a full record must be kept of the dimensions of all masonry built. The following rules will govern the location of all buildings and platforms, as to their distance from tracks, viz.: The tops of all platforms adjacent to the main track should be 12 inches above the top of the rail (conforming to the grade of the track) and the nearest edge of the platform 2 feet 9 inches from the gauge side of the rail. The tops of all freight platforms on side tracks for general use should be 3 feet 8 inches above the top of rail on side track (conforming to grade of track), and the edge of platform 3 feet 3 inches from the gauge side of the nearest rail. No building should be located nearer than 7 feet in the clear from the centre of the main track.

No building should be nearer than 6 feet from the centre of any side track, which is used for meeting and passing trains, or for general purposes.

All buildings or other structures, erected by corporations or other parties, and all stone, ties or timber piles for Company use, should not be located nearer than 6 feet from the nearest rail.

PERMANENT STAKES.

79. Resident Engineers will plant permanent stakes at the B. C. and E. C. of every curve and at the point of commencement of spiral curves, when the track laying and ballasting is completed; for this purpose they will requisition their District Engineer for suitable monuments.

PERMANENT BENCH MARKS.

80. Place permanent bench marks reduced to true sea-level datum.

DIARY.

81. The Resident Engineer will keep a daily record of all instructions given to contractors; he will enter the date on which work under each contractor began and ended; the date of beginning and completion of all openings and important piece of work; also notes classifying material, the manner in which the contractor handles his work and such other notes as will enable a complete accurate classification to be made; the date of any special notices or instructions served upon contractors; every item bearing upon the work should be entered daily. Record in your diary all storms, such as extraordinary high winds, heavy rainfalls, low temperatures, excessive snowfalls, etc.

LIMIT OF HAUL.

82. It must be understood that all excavation is to be hauled to the limit; no borrowing will be permitted, unless the overhaul price exceeds the earth work price. When it is necessary to waste, the material should be used to widen embankments within the limit of the free haul, waste to be uniformly and evenly distributed. No waste will be placed on the sides of cuts nor overhaul paid on waste unless first approved by the District Engineer.

The contractor should be told where the excavation is to be hauled, to avoid waste and borrow.

MONTHLY ESTIMATES.

83. The Resident Engineer will prepare on Form No. 4 approximate monthly estimates of all the work done and materials delivered on the work section by section, using a separate sheet for each section. And on Form No. 5 a summary estimate of all the work done on all the sections under one contractor. This estimate must show the total amount of work done from the beginning of the work to the end of the month for which the estimate is made, entering earth works to the nearest 100 cubic yards, timber to the nearest 1 000 feet, masonry to the nearest cubic yard, etc. Fill all the blanks, or note no work done where such is the case.

The amount due for the current month should be shown in red figures.

Note in remarks column anything affecting result, such as material hauled from an adjoining mile. Should the mile post come in the centre of a structure group the two sections together, but in general each section should be shown complete by itself.

EXTRA WORK.

84. The contract provides that all claims for extra work or material must be presented to the Chief Engineer for allowance at the close of each month in which it was done, otherwise the Commissioners are not required to allow or pay for same. Resident Engineers will write to the District Engineer for the Chief Engineer's approval for the contemplated work, noting the estimated cost. This approval will be promptly returned to the Resident Engineer and he will attach same to the contractor's bill and return both with the monthly estimate, adhering strictly to the contract that no bills will be allowed that are rendered later than the month in which the work was done. The Resident Engineer will report fully upon the proposed extra work, the reasons for same, and in general give such full information as will enable the Chief Engineer to reach a just conclusion.

CHANGES IN GRADE OR ALIGNMENT.

85. Resident Engineers will not be allowed to make changes in grades or alignment, but will promptly call their District Engineer's attention to any possible change they consider beneficial. Rates of grade fixed on the location profile will govern and must be adhered to. Vertical curves will be carefully graded to elevation called for. Easement curves will be staked as per table and according to the directions given for same.

FINAL PROFILE.

86. A final profile must be made as per sample Plate C, on a continuous roll of Plate A profile paper, 400 feet to an inch horizontal, 20 feet to an inch vertical. Leave 18 inches blank space at each end. Place a neat title at each end of the roll as shown in sample sheet. On the outside edge at both ends of the profile write "Final Profile Residency No....., District....., National Trans-Continental Railway, Eastern Division. Miles ..... to ....., Station..... to ..... On this final profile follow the general style of Plate C. Plot overhaul as shown. Give the stations and plus of the Moncton end of stringer on pile and girders and other bridges, centre of all pipes and other culverts, plus of all roads and cattle guards, names of rivers, brooks, cities, towns, villages and stations, length of sidings with plus of switch stand, semaphores, alignment, position of water tank and stand pipe, bench marks and clearing, width of right of way, fencing for each fence, gate and farm crossings; note quality and description of ballast; summarize the entire residency mile by mile, giving totals of all classifications and quantities.

FINAL ESTIMATES.

87. Quantities for final estimates are to be made up promptly and completed as fast as the work is finished. Particular care is required to secure accurate computation, and frequent checks will be made to insure accuracy. A copy of Crandall's table will be supplied and should be used in checking quantities. All final estimates will be made up in ink, that for all grading, clearing and grubbing in the standard field cross section book and be fully entered in the office cross section book in ink, fully explaining by notes, the classification and disposition of all quantities. These notes must be full and sufficient to enable the making from them of a summary, which summary will be the original of what is to appear on the final estimate sheet. Clearing and grubbing must be shown on a page by itself, and the station numbers given between which clearing and grubbing is estimated, with width of area, also the name of the contractor, the total being

placed in the summary. The notes for all excavations quantities, not entered in the cross section book, are to be referred to by notation, giving the book and page upon which they appear, such as foundation pits or other excavations, the notes of which belong to the bridge book. A total summary must be made showing each mile on a separate line for the entire residency at the end of the book, which must be signed as correct. All cross sections must be inked in, showing fully the classification lines and the total classification for each cut.

The final estimate in detail for all bridge substructures, box and other culverts, pipe drains and other structures pertaining to the case of drainage is to be returned in the bridge book, as instructed in Section 54. Such book must show quantities, classifications and disposition of all the material handled, and the notes necessary to check the quantities, together with the name of the contractor. The estimate will be made out in triplicate, be signed as correct, and forwarded to the District Engineer, who will check same, approve and forward to the Chief Engineer.

ESTIMATES NOT TO BE GIVEN TO CONTRACTOR.

88. It must be distinctiy understood that the Resident Engineer is not to give any estimates to the contractors. All such information must come direct from the Chief Engineer.

RESIDENT ENGINEER REPORTS.

89. The Resident Engineer will report fortnightly to his District Engineer, giving a concise summary of the condition of all the work in his residency.

DISTRICT ENGINEER REPORTS.

90. The District Engineer will send in to the Chief Engineer once a month, or oftener when opportunity offers, and there is matter of interest, full reports of all the work in his District.

ACCOUNTING.

Classification of Construction Expenses.

ENGINEERING.

91. To this account should be charged all salaries and expenses of Engineers, Assistants, and Axemen; teams for transportation of Engineers and men to and from work, or upon trips of inspection of line of work, or incidental thereto; Engineer's instruments, rods, chains, axes, hatchets, tape lines, keel or marking chalk, stakes, profile and drawing paper, tracing linen or paper, cross section paper, transit and level books, cross section or topographical books, India ink and colors, drawing boards, stools, map cases, paper racks stationery for office or field, fuel, lights and camp equipage, and other analogous items.

Proportion of Engineers' expenses when engaged on special work should be charged to same.

RIGHT-OF-WAY AND STATION GROUNDS.

92. To this account should be charged the cost of land acquired for roadbed (of necessary width conformably to depth and slopes of excavations and embankments), station and terminal grounds; also the cost of land purchased for ingress or egress to or from station grounds; salaries and expenses of counsel, right-of-way Agent, and of Engineers and assistants when especially engaged upon such matters; stakes used to denote right-of-way limits; expenses of Appraisals, or of Juries, Commissioners or Arbitrators in condemnation cases; cost of removal of buildings when upon right-of-way, station or terminal grounds, but not included in property purchased; stationery supplied Right-of-Way Agent, Engineers, and assistants, engineers' instruments, etc., when used for such purposes; commissions paid outside parties for purchase of properties for these purposes; cost of plats, abstracts, notarial fees, recording deeds, etc.

Note particularly account No. 3, "Real Estate," as regards the cost of property purchased but not required for the operation of the road.

REAL ESTATE.

93. To this account should be charged the cost of all land purchased by the railway company in excess of that actually required for roadbed, station or terminal grounds, or other specific purpose, including all expenses incurred in connection with such purpose as enumerated in account No. 2, "Right-of-Way and Station Grounds." A portion of the cost of land purchased outside right-of-way for borrow pits or waste banks should be charged to this account.

NOTE—The amount to be charged to real estate should be an estimate of the saleable value of said borrow pits or waste banks after completion of the road.

GRADING.

94. To this account should be charged the cost of grading roadbed, whether excavations or embankments; clearing and grubbing; dressing slopes of cuts and

fills; reconstructing pikes or roads; ditching roadbeds; berm ditches; cost of material taken from borrow pits, haul if allowed; amounts paid for privilege of making waste banks outside of Company's right-of-way or station grounds; ditches for waterways not specially required by right-of-way agreement, in which case cost would be properly chargeable to account No. 2, "Right-of-Way and Station Grounds." This account includes retaining walls and other masonry or riprap for the protection of embankments, cuts, and slopes; cribbing or bulkheading built to protect the tracks or embankments along the seashore or banks of lakes and streams, including the cost of any cribs, breakwaters, wing dams, or other devices constructed to change the direction of the current of a stream to prevent the washing of the bank; also freight on material and transportation and subsistence of grading gangs.

TUNNELS.

95. To this account should be charged the cost of tunneling including such timber as may be used for centreing, packing, etc.; cost of stone, brick, cement, sand, lime, salt, piles, timber, spikes, nails, braces, concrete, etc., used in the construction or lining of the same; cost of labor preparing or securing the same, transportation, scaffolding, cofferdams, and pneumatic caissons; cost of soundings, and machinery, pumps, engines, etc.: used for such work. This account does not include grading or surfacing the roadbed, or cost of the track through the tunnel.

BRIDGES, TRESTLES AND CULVERTS.

96. To this account should be charged the cost of all bridges and trestles erected to carry tracks over streams, ravines, streets, or other railways, and culverts, both substructure and superstructure, including transportation. This account should include abutments, piers, supports, draw and pier protection; machinery to operate drawbridges; masonry ends and wing walls for culverts; cost of inspection of bridge material, either at shop or site of structure; cost of tests; cost of wing dams, cribs, or ice-breakers for the purpose of regulating the current of a stream or breaking up ice jams before reaching a bridge; also labor and material used in painting structure.

In case "false work" is furnished by the railway company for erection of bridge superstructure, the cost of same should be charged to this account, and when removed, the value of the material removed should be credited to this account and charged to the account benefitted.

TIES.

97. To this account should be charged the cost of all cross, witch, bridge, and other ties laid in the main track or tracks, sidings, spurs, gravel, and repair tracks; in tunnels, depots, shop, and other yards, shops and other buildings, etc.; on turntables, wharves, piers, track scales, inclines, bridges, trestles and culverts; to and from coal chutes, coal pockets, fuel, and water stations, etc.; also the cost of transportation, inspection, loading, unloading, and any process of preservation.

RAILS.

98. To this account should be charged the cost of rails laid in the main track or tracks, sidings, spurs, gravel, and repair tracks, in tunnels, depots, shops and other yards, shops, and other buildings, etc.; on turntables, wharves, piers, track

scales, inclines, bridges, trestles, and culverts; to and from coal chutes, coal pockets, fuel and water stations, etc.; also the cost of transportation, inspection, loading, and unloading.

TRACK FASTENINGS.

99. To this account should be charged the cost of spikes used for laying rails, and of fish and tie plates, splice or angle bars, chairs, rail braces, bolts, nuts, nut locks or washers used in connection with same; also the cost of transportation, inspection, loading, and unloading.

FROGS AND SWITCHES.

100. To this account should be charged the cost of all frogs, switches, and switch material, including switch stands (throw or lever), frog guard rails, crossing frogs, and timber, bolts, etc., used in foundations or base for same, and the cost of transportation.

BALLAST.

101. To this account should be charged the cost of all ballast, whether of broken stone, slag, gravel, or other material especially provided for this purpose; also the expense of loading, hauling, unloading alongside of track, and transportation.

TRACK LAYING AND SURFACING.

102. To this account should be charged the cost of distributing, laying, spacing, and lining ties; cost of laying, spiking, and jointing rails, surfacing and lining track; including the adjustment of rail to proper elevation, and labor of placing frogs and switches; cost of track tools, including shovels, picks, track jacks, crowbars, levers, spiking mauls, gauges, and wrenches; cost of putting in ballast; service of engines, cars, and crews distributing track material, and transportation.

FENCING RIGHT-OF-WAY.

103. To this account should be charged the cost of all material and labor used in constructing board, wire, rail, hedge, stone, or other fences along the right-of-way or limits of roadbed, and transportation; but no charge should be made to this account for fences constructed around stock yards, fuel stations, station grounds, shops, and on other properties outside of right-of-way, which should be charged to their appropriate accounts. The cost of permanent or portable fences for protection of tracks from snow should not be charged to this account, but to account No. 28, "Miscellaneous Structures."

CROSSINGS, CATTLE GUARDS AND SIGNS.

104. To this account should be charged the cost of all labor and material used in constructing farm, country-road, or street crossings at grade, overhead bridges, cattle guards, and wing fences to same, and all track signs, crossing gates, and watchhouses at crossings, and transportation.

INTERLOCKING OR SIGNAL APPARATUS.

105. To this account should be charged the cost of interlocking or signal apparatus complete, when built by contract. If built by the railway company,

the cost of labor and material, including all levers, racks, wires, pulleys, semaphores, semaphore signals, ground signals, posts, materials in box troughs, and other fixtures, tower, foundation for same, and all other work necessary to complete it, and transportation.

TELEGRAPH LINES.

106. To this account should be charged the cost of newly constructed telegraph and telephone lines, including poles, wires, billets, insulators, instruments, and all other materials used, also labor employed in the construction work, cost of all tools used, and transportation.

STATION BUILDINGS AND FIXTURES.

107. To this account should be charged the cost of all material and labor expended on all station buildings, including cost of transportation, platforms, sidewalks, excavation, foundation, drainage, water, gas, and sewer pipes and connections, steam heating apparatus, stoves, electric light and power fixtures, including wiring for same, grading and putting ground in order after building has been finished; electric bells, elevators, and all other material, furniture, or fixtures used to complete the building; wells for water supply or stations; also salaries and expenses of Engineers and Architects.

NOTE.—The account should include the cost of similar buildings on docks, wharves, and piers, when used for station purposes.

SHOPS, ROUNDHOUSES AND TURNTABLES.

108. To this account should be charged the cost of all buildings to be used as shops (including transfer tables), or roundhouses (including cinder and drop pits), and turntables; plants for heating the buildings; platforms, sidewalks, and outhouses in connection therewith; oil houses, sand houses, storehouses for company's material, scrap bins, etc. This account should include amounts paid when erected by contract; labor and material when built by company, preparing grounds before and clearing up same after construction, foundations, painting, excavation for and lining of turntable pit, and of cinder or drop pits inside or outside of roundhouses; foundation for turntable, loading, unloading, and placing turntable in position, levers and stops for handling turntable; sewerage system, connection with water supply system, shop wells; architects' fees for drawing plans, supervision of construction by Engineering Department or others; transportation and all incidental expenses. This account does not include the cost of tracks laid in connection with these buildings.

SHOP MACHINERY AND TOOLS.

109. To this account should be charged the cost of all new machinery and additional tools placed in any of the shops or roundhouses, including foundation for same; transportation, loading, unloading, and placing machinery in position. It must not include any machinery or tools purchased to take the place of those that have been worn out or destroyed.

WATER STATIONS.

110. To this account should be charged the cost of material and labor expended in the construction of water stations for the purpose of supplying locomotives with water, including cost of windmills, pumps, boilers, pumphouses, tanks,

tubs, tank foundations, track tanks, or troughs, engines and all fixtures and pipes, standpipes or penstocks and connections; wells, dams, and reservoirs or cisterns; transportation; also engineering expenses, and tools used in the work. This account must not include waterworks, wells, etc., exclusively for supply of stations, hotels, tenements, or section houses, which should be charged to the appropriate account.

FUEL STATIONS.

111. To this account should be charged amounts paid under contract for, or the cost of all labor and material expended in, the construction of coal platforms, coal sheds, coal pocket chutes, woodsheds, and racks, and all machinery or appliances necessary to equip them for service. This account includes inclines at fuel stations (except the cost of track laid thereon), tipple cars, buckets, cranes for handling same, elevating machinery, gasoline or other engines for operating same, dumping machinery, all appliances for weighing coal in pockets and opening coal pockets, transportation, architects' fees, engineering, etc.

GRAIN ELEVATORS.

112. To this account should be charged the cost of ground on which elevator is located, cost of foundations, elevator building, conveyors, fixtures, machinery complete; and all material, labor, transportation, and other charges incidental to construction. This account does not include the cost of small storage elevators at way stations, which are considered to be station buildings.

STORAGE WAREHOUSES.

113. To this account should be charged the cost of ground on which storage warehouses are located, and cost of buildings, machinery, etc., complete, when built by contract; if built by the railway company, the cost of ground, material, machinery, fixtures, and labor, transportation, and all other expenditures incident to construction.

The buildings herein referred to are not the ordinary freight warehouses or stations where freight is received for shipment, etc., but warehouses in which merchandise is stored, and which the railway company or others operate as warehouses.

DOCKS AND WHARVES.

114. To this account should be charged the entire cost of docks, wharves, ferry or other landings, and inclines to transfer steamers, including grounds and riparian rights, dredging of slips, piling, filling cribs, pile protection, building cofferdams, pumping or bailing water, masonry walls or filling, etc., transportation, and all expenses incurred in the construction of these structures, except the cost of tracks and buildings thereon.

ELECTRIC LIGHT PLANTS.

115. To this account should be charged the cost of all labor and materials, including cost of transportation, used to put in operation either arc or incandescent light plants, such as dynamos, engines for running dynamos, wire constituting lines, glass globes, carbon or arc lights, carbonized filament for incandescent lights, poles, hangers for lights, insulators, and every expense incidental to the erection of the plant. When it is necessary to erect a building for an electric light plant, the entire cost of the same, including ground, should be charged to this account.

ELECTRIC MOTIVE POWER PLANTS.

116. To this account should be charged the cost of ground on which electric-power stations are located, and the cost of erection of power and car sheds, including all expenditures for labor and material, stationary engines, boilers, and machinery, pumps, condensers, foundations, and settings for steam plants; generators, foundations, and settings, switchboard, and lighting apparatus for electric plants; current conductors, including poles, wires, and labor for overhead work, third rails, fastenings for same and labor laying same, with cost of inspecting, loading, and unloading; feed wires, track-bonding, and grade crossing cut-outs; and all other expenditures connected with the installation of plants intended to generate and distribute electricity for motive power, including transportation.

GASMAKING PLANTS.

117. To this account should be charged the cost of all labor and material, including cost of transportation, used to put into operation a gas-making plant complete. The cost of ground on which the plant is located should also be charged to this account.

MISCELLANEOUS STRUCTURES.

118. To this account should be charged the cost of structures of every character, including cost of material, labor, transportation, and all incidental expenses connected therewith, which are permanent or a betterment to the property and enter into the cost of road, and which are not otherwise herein particularly referred to, and or which no account has been provided; the object being to designate one general classification, to which may be charged the cost of all minor superstructures, and in this way avoid increasing the number of general accounts.

LEGAL EXPENSES.

119. To this account should be charged the amount of all attorneys' salaries, fees, and expenses, and all other incidental legal expenses incurred during the process of construction of a road, except when the expense can be charged directly to the account for which it is incurred.

INTEREST AND DISCOUNT.

120. To this account should be charged discount on securities sold; interest on loans effected, and on notes issued for construction purposes or overdue payments to contractors or other creditors, and discount, interest, and exchange on other commercial paper issued for a similar purpose. Premium realized from sale of bonds, stock, or other securities should be credited to this account. Discount or premium realized from sale of bonds, stock, or other securities for a specific work should be applied to such work.

GENERAL EXPENSES.

121. To this account should be charged organization expenses, and expenses incurred in the disposal of securities; salaries and expenses of general officers of a road under construction, clerks in general offices engaged on construction accounts or work, stationery, and office expenses; also all items of a special and incidental nature which can not be properly located under any other account.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 2

Table of values for equating distance rise and fall and curvature.

(See Page 15 of Report)

Drawing No. 59.

THE NATIONAL TRANS-CONTINENTAL RAILWAY.

Table of Values for Equating Distance, Rise & Fall, and Curvature, &c.

Class	Value per Train Mile	Value per foot per Daily Train per Annum	Capitalized Value per foot per Daily Train per Annum	Capitalized Value per Mile per Daily Train per Annum	Saving effected per Daily Train per Annum per Mile of Shortening	Justifiable Expenditure per mile of saving in distance for 12 Daily Trains per Annum	Justifiable Expenditure per mile of saving in distance for 20 Daily Trains per Annum	*Distance.* Capitalized Values per Mile to nearest $100 and interest 4%. *One* daily train each way equals *two* daily trains.
	$ c	$ c	$ c	$ c	$ c	$ c	$ c	
A.....	0 30	0 02	0 50	2,600 00	104 00	31,200 00	52,000 00	Distances so short as not to affect Track or Train Wages; aggregating less than 2 Miles.
B.....	0 50	0 03.4	0 85	4,500 00	180 00	54,000 00	90,000 00	Distances affecting Train Wages, but not so great as to affect the number of Stations or Sidings—From 2 to 5 miles.
C.....	0 60	0 04	1 00	5,300 00	212 00	63,600 00	106,000 00	Distances so great as to affect number of Stations and Sidings required—From 5 to 75 miles.
D.....	1 00	0 07	1 75	9,200 00	368 00	110,400 00	184,000 00	Distances so great as to affect number of Engine Districts—Over 75 Miles.

Class	Value per Foot Rise & Fall per Daily Train per Annum	Capitalized Value per Foot Rise & Fall per Daily Train per Annum	Justifiable Expenditure per ft. of saving in Rise & Fall for 12 Daily Trains per Annum	Justifiable Expenditure per ft. of saving in Rise & Fall for 20 Daily Trains per Annum	*Rise and Fall—All Trains.* Freight Train Velocity Limits—30 Maximum—10 Minimum, Miles per hour.
	$ c	$ c	$ c	$ c	
A Minor Grades.....	0 12	3 00	36 00	60 00	All Rise & Fall up to 30 ft.
B Minor Grades.....	0 48	12 00	144 00	240 00	Where grades require shutting off Steam, but not application of Brakes, in descending.
Ruling "	0 88	22 00	264 00	440 00	This class includes all Rise & Fall of over 30 feet on grades less than 0·6% and between 30 ft. and 100 ft. on 0·6% grade and steeper grades of small drop not covered under Class C.
C Minor Grades.....	1 00	25 00	300 00	500 00	Where grades require the application of Brakes and shutting off Steam descending.
Ruling "	1 40	35 00	420 00	700 00	This class includes all Rise & Fall of over 100 Feet on grades of 0·6% and a proportionate fall on steeper grades.

Note:—1 degree of Curvature means 1 degree of Central Angle regardless of radius of Curve. It is assumed that expense due to Curvature is in proportion to total Central Angle.

Curvature—All Trains.

The Elimination of 1 degree of Curvature will save 16 cents per Daily Train per Annum (including passenger and freight trains); equal to Capitalized Value of $4.00 per Degree.

Justifiable Expenditure per degree of saving in curvature for 12 daily trains, $48; and for 20 daily trains, $80.

If a curve is in a particularly dangerous place which necessitates a Watchman or other additional expense the value of its elimination must be considered separately.

Assumed Costs per Freight Train Mile, Engine Mile, &c.

Train Mile $1.00, Engine Mile $0.35, both assisting and returning light; if assisting both ways with no light running $0.40.

Minimum cost for Assistant Engine when not at Divisional Point or used for Yard Work $18.00 per day or $6,600 per annum.

Light running $0.25 per Engine Mile, Switching $0.30 per Engine Mile, Doubling Grades $0.90 per Engine Mile straight distance, or $0.45 per additional Engine Mile.

Level Crossings of other Railways::—

Justifiable Expenditure to save one normal level crossing, $40,000

Note:—For calculating Justifiable Expenditure per Mile, 10 Daily Trains each way (equal to 20 Daily Trains) will be assumed between Moncton and Quebec, and between Winnipeg and Junction of Branch to North Bay.

Between other points 12 Daily Trains will be assumed.

Justifiable Expenditure per mile takes into consideration maintenance of Rails, Ties, Ballast, &c.

D. MacPHERSON, *Asst. Chief Engineer.*
Ottawa, August, 1905.

Approved HUGH D. LUMSDEN, *Chief Engineer,*
August, 30th, 1905.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 3

Correspondence in connection with volume of traffic to be expected on the Railway.

(See Page 16 of Report)

OTTAWA, July 24th, 1905.

MR. H. A. WOODS, *Assistant Chief Engineer,*
Grand Trunk Pacific Railway Co.,
Montreal, Canada.

DEAR SIR:—

I am preparing instructions for our Locating Engineers as to the equating value of distance, curvature, rise and fall, and shall be glad if you will kindly let me know the number of daily trains each way, which you have assumed for purposes of calculation on main line of the G. T. P.

Yours very truly,
D. MACPHERSON,
Asst. Chief Engineer.

MONTREAL, QUE., July 26th.

MR. D. MACPHERSON,
Asst. Chief Engineer, Trans-Continental Railway,
Ottawa, Ont.

DEAR SIR:—

Replying to yours of July 24th, stating that you are preparing instructions for your Locating Engineers as to the equating value of distance, curvature, rise and fall, and asking the number of daily trains, each way, we have assumed for purpose of calculation on the main line. I beg to say that for our Prairie Division we have assumed ten trains, each way, daily. I think this is not in excess of what we shall require on that Division, and the Lake Superior Branch.

Yours truly,
(Sgd) H. A. WOODS,
Asst. Chief Engineer.

OTTAWA, Aug. 3rd, 1905.

MR. H. A. WOODS, *Ass't. Chief Engineer,*
Grand Trunk Pacific Railway,
Montreal, P. Q.

DEAR SIR:—

I would beg leave to thank you for your letter of the 26th July stating that you have assumed ten daily trains each way on your Prairie Division. Would you kindly let me know how many trains you have assumed for the Mountain Division, and how many you think would be reasonable for the main line of the Eastern Division. It seemed to me that ten daily trains each way was too large an assumption for our end of the line as a good deal of traffic will go via Lake Superior, and this large number of trains makes the capitalized value per mile of track very large. Assuming $1.17 as the train mile unit cost, then for distances short enough not to affect train wages the additional cost per train mile would be 37½ cents, which capitalized at 5%, would give $2,745 as the value per mile per daily train per annum, amounting to $54,900 per mile on a ten train basis. For distances requiring extra side tracks this last value would amount to $101,376.

Yours very truly,
D. MACPHERSON,
Asst. Chief Engineer.

MONTREAL, QUE., Aug. 7th 1905

MR. D. MACPHERSON,
Asst. Chief Engineer, Trans-Continental Ry.,
Ottawa, Ont.

DEAR SIR:—

Yours of Aug. 3rd, requesting information as to the number of trains we have assumed for comparison of alternate lines on our Mountain Division, received on return to office.

Replying to same, I have to say that, as yet, we have not progressed far enough with our surveys on this Division to give definite instructions to our Engineers. There are so many obstacles, in the way of grades and curvature, on this part of the line, which may make comparison of alternate lines unnecessary. However, I may say that where conditions are such as to admit of comparison, it will probably be on the basis of eight daily trains each way. In this connection, I may say that we expect, within a few years, our westbound business will exceed our eastbound business, west of Edmonton, and possibly for some considerable distance east of that point.

I agree with you that the ten daily trains, each way, on the Trans-Continental, east of the Junction of our Lake Superior Branch, is too large an assumption for that part of the Line. I should consider six daily trains each way, sufficient for comparison.

For your information I may say further, that we assume the unit cost per train as $1.35, which is reported cost on the Canadian Pacific Railway, and that we capitalize on a basis of 4%, instead of 5%. I am not sure that the Government will pay above 3½. The difference between the capitalization at 5% and 3½ makes quite a radical difference, as you will note.

I expect to be in Ottawa within a day or two, and shall take pleasure in calling at your office, and going into this matter a little more in detail, if you so desire.

Yours very truly,
(Sgd.) H. A. WOODS,
Asst. Chief Engineer

OTTAWA, August 9th 1905.

S. R. POULIN, ESQ.,
District Engineer,
North Bay, Ont.

DEAR SIR:—

I am preparing a table of equating values for distance, curvature and rise and fall, for the purpose of giving our Locating Engineers a basis on which to compare different lines, and I shall be glad if you will kindly let me have your opinion, based on your knowledge of the country and of existing lines, as to what would be a fair number of daily freight trains per annum, each way, to assume as the probable maximum number over your district. Ten daily trains each way have been suggested, but it seems to me too large, and I shall be glad to have your views or any suggestions that will be useful in this connection.

Yours very truly,
D. MACPHERSON,
Asst. Chief Engineer.

North Bay, August 11th 1905.

Mr. D. MacPherson,
Asst. Chief Engineer,
Ottawa.

Dear Sir:—

In answer to yours as to what would be a fair number of daily freight trains per annum(?)over my District, I think that 7 or 8 at the most would be a fair average. My reasons for saying so is: that the C. P. R. here at North Bay, after twenty years of operation have only that number in the busy time, and that the number of cars on their trains do not average over 33 cars, that is from 28 to 42 cars according to the motive power, while over our line with the grades and curvatures contemplated, 8 trains each way would give nearly double the amount of cars, that the C P.R. are moving past North Bay, and the freight passing North Bay is not only from the West but probably one-third or one-half comes from the Soo Line and the settlements between here and Chapleau and Sault St. Marie. Of course it can be taken for granted that there will be large settlements also along the new line and that local traffic will emanate from local points. Still if the G. T. P. build their projected line from North Bay in a westerly direction to tap the main line, it would probably take all over the Ontario traffic going and coming from the west, and would in proportion reduce the number of trains over my district, so that I think that 8 trains, probably 400 or 450 cars each way is a good average for the next 25 or 30 years, unless the wheat should find its outlet over the said line.

Yours truly,
S. R. Poulin, *Dist. Engr.*

Ottawa, August 15th, 1905.

H. D. Lumsden, Esq., *Chief Engineer,*
Trans-Continental Railway,
Ottawa, Ont.

Dear Sir:—

Tables should be issued as soon as possible to Locating Engineers giving Equating Values for Distance, Curvature and Rise and Fall, in order that they may have definite values for comparing different routes. The basis for all these calculations is the assumed number of daily trains and cost per train mile.

Some calculations were made in the interim report based on ten daily trains each way, or a total of twenty daily trains, but it appears to me that this is entirely too high, and that probably the number should not be the same for all Districts, as the traffic between Winnipeg and Junction of Fort William Branch would be heavier than on any other part of the line.

As an illustration of my argument that twenty trains is too high; assume (which is C. P. R. basis of calculation) that total cost per train mile is $1.00, then for additional lengths of line great enough to necessitate extra sidings, the cost for each additional train mile would be about $0.60. In twenty daily trains this equals 365 x 20 x 60 = $4,380.00, which would be the annual extra cost of adding one mile of track under these conditions. Capitalize this at 4% and it amounts to $109,500.00. In other words, if you assume twenty daily trains you can afford to spend $109,500.00 for every mile you can shorten the line, in the distances long enough to lessen the number of sidings. It does not appear to me that we would be justified in spending that amount, and I should be glad if you will kindly advise

me the number of daily trains each way which should be used as a basis of calculation on each district, and I will then prepare the necessary table for District Engineers.

I enclose you copies of correspondence with the Assistant Chief Engineer of the Grand Trunk Pacific and our District Engineers, on the subject.

Yours very truly,

D. MacPherson.

August 18th, '05

D. MacPherson, Esq.,
Assistant Chief Engineer.

Dear Sir,

In reply to yours of the 15th. inst., in regard to preparation of tables to be issued to Locating Engineers, giving equating values for distance, curvature and rise and fall, for comparison of routes, I think you might assume six daily trains per day each way,

Yours truly,

H. D. Lumsden.

Ottawa, August 29th 1905.

H. D. Lumsden, Esq.,
Chief Engineer,
Ottawa, Ont.

Dear Sir:—

Herewith tracing of Table of Values for Equating Distances, Curvature and Rise and Fall. If you approve, will you kindly sign same, so that I may have copies sent out to the District Engineers.

Yours very truly,

D. MacPherson.

Enclos.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 4

Mr. Collingwood Schreiber's Estimate.

(See Page 17 of Report)

Grand Trunk Pacific Railway, 1903.

I estimate the cost of construction of the Grand Trunk Pacific Railway as a road of an ordinary character such as has been built in Canada with maximum grades of 1% or 52.80 per mile, being less than the maximum grades upon the Intercolonial Railway, the maximum grades on which road are as follows:—

Bedford grade 1.80% or 95.00 feet per mile.
Folleigh " 1.22% or 64.42 "
Metis " 1.22% or 64.42 "

Estimated Cost of the Grand Trunk Pacific Railway.

Moncton to South Approach to Quebec Bridge.....	$ 25,000	per mile
Quebec to Winnipeg.....	28,000	"
Prairie Section.....	17,500	"
Mountain Section.....	67,000	"
Terminals at Pacific Coast.....	3,000,000	

COLLINGWOOD SCHREIBER.

Ottawa, 12th July, 1903.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 5

Copy of Letter from Mr. W. S. Fielding, giving Estimate of Cost.
(See Page 17 of Report)

MINISTER OF FINANCE.

OTTAWA, May 11th, 1904.

DEAR MR. EMMERSON,

Last summer, while I was Acting Minister of Railways, and when the Grand Trunk Pacific scheme came up, I asked Mr. Schreiber's opinion as to the probable cost of constructing the Eastern Division (Government portion) of the road. Mr. Schreiber gave me the information, although not in the form of a written report, and I used it in the House, mentioning his name as my authority. His opinion was that a road could be constructed from Quebec to Moncton for $25,000 per mile, and from Quebec to Winnipeg for $28,000 per mile.

These estimates were made for a road of an ordinary character, such as is constructed elsewhere. In order to make a sufficiently liberal allowance for a road of better character, I added 25%, making the estimate $31,250 per mile from Quebec to Moncton, and $35,000 per mile from Quebec to Winnipeg. I have not spoken to Mr. Schreiber on the matter of late, but from other experienced railway men I have received assurances that my estimate was a most liberal one and that the road could probably be constructed well within these figures.

As above stated, I did not obtain a written report from Mr. Schreiber. I think it might be convenient to have a report from him. May I suggest that you discuss the matter with him and, if there is no objection, ask him to make a short memorandum, putting in writing the information which he gave me last summer.

Yours faithfully,

(Sgd.) W. S. FIELDING.

The Honourable H. R. EMMERSON,
Minister of Rys. and Canals,
OTTAWA, ONT.

OTTAWA, 17th May, 1904.

SIR,

In compliance with your request that I should put in writing the information orally given to me by Mr. Fielding last summer, while he was Acting Minister of this Department, in respect of the estimated cost of constructing the Eastern Division, between Moncton and Winnipeg, of the proposed Grand Trunk Pacific Railway, I would state as follows: premising that the character of the railway I had in view was a substantially built railway, with maximum grades of less severity, and curves of greater radius than those on the Intercolonial Railway.

As to the section between Moncton and the South approach to the bridge now in course of construction over the river St. Lawrence at Quebec, I advised

Mr. Fielding that from my personal knowledge of the general configuration of the country and from information gathered from the written reports of various Engineers who have traversed the district, I have arrived at the conclusion that the cost of construction should not exceed $25,000 per mile.

As to the section between Quebec and Winnipeg, I considered this section on the assumption that the line would probably follow the height of land from a point some distance from Quebec to a point North of Sudbury, and thence to Winnipeg, passing North of Lake Nepigon, I availed myself of the information contained in various engineers' reports on surveys made of the country lying between the neighbourhood of Sudbury and Winnipeg, and the conclusion I reached was that the cost of construction need not exceed $28,000 per mile, and I so informed Mr. Fielding.

I would say that I am still of opinion that a road of the standard above indicated can be constructed at these figures.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) COLLINGWOOD SCHREIBER,
Chief Engineer.

The Honourable H. R. EMMERSON,
Minister of Rys. and Canals,
Ottawa.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 6

Estimate of Cost Prepared by Mr. Lumsden, June 23rd, 1908.

(See Page 17 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY

Statement shewing number of Miles contracted for and Miles unlet to date, with Cost per Mile of Completed Main Line (including Sidings, &c.) and percentages of total work done on each Contract to 1st June, 1908.

June 23rd, 1908.

Mileage from Moncton		LOCATION	Miles let	Percentage of work done on original contracts to Feb. 29, '08.	Estimated cost per mile of completed main line
From Mile	To Mile				
		Number of miles under contract is 1227.93 as follows:—			$ c
0·00	50·00	Moncton to near Chipman	50·00	16·84	41,995 00
50·00	58·55	At Chipman	8·55	8·67	83,570 00
58·55	97·60	Chipman to I.C.R. Crossing	39·05	Nil	32,573 00
97·60	164·00	I. C. R. Crossing to Mile 164	66·40	Nil	45,341 00
164·00	195·80	Mile 164 to Grand Falls	31·80	Nil	110,172 00
195·80	256·68	Grand Falls to New Brunswick Boundary	60·88	25·11	51,130 00
256·68	309·74	N. B. Boundary to 150 miles east of Quebec Bridge	53·06	Nil	65,771 00
309·74	459·74	From Quebec Bridge, 150 Miles eastward	148·89	31·19	65,370 00
		Quebec Bridge link (not included in estim'te)	1·11		
459·74	509·74	Quebec Bridge, westerly	50·00	49·39	104,589 00
509·74	609·74	50 miles west Quebec Bridge to 150 miles west	100·00	65·49	
609·74	654·74	150 miles west Quebec Bridge to near Weymontachene	45·00	8·48	
654·74	656·07	To be included in this contract	1·33		
877·75	1027·75	Near Harricanaw River to Junction with T. & N. O. Ry.	150·00	1.0	46,842 00
1027·75	1127·75	Junction T. & N. O. Ry. for 100 miles west	100·00	Nil	59,425 00
1334·35	1409·35	From 19½ miles west of Mud River easterly 75 miles	75·00	Nil	46,454 00
1557·80	1804·66	Lake Superior Junction to west bank Red River (includes Red River Bridge and double track from Crossing of Dundee Branch)	246·86	61·52	85,003 00
		Total	1227·93		
		Number of miles yet to be contracted for is 576·73 as follows:—	Miles Unlet		
656·07	877·75	Weymontachene to near Harricanaw River	221·68		58,058 00
1127·75	1171·85	From 100 miles west of Junc. T. & N. O. Ry. to west end District "D"	44·10		62,524 00
1171·85	1334·35	From west end of District "D" westerly	162·50		37,000 00
1409·35	1429·76	From 19½ miles west of Mud River to west end of District "E"	20·41		33,480 00
1429·76	1557·80	From west end of District "E" to Lake Superior Junction	128·04		55,943 00
		Total	$576·73		
		Average cost per mile=$63,427. For 1803·55 miles=Total, $114,393,765			

This estimate is based on quantities as estimated by District Engineers and contract prices, so far as contracts have been let, remaining prices estimated by Chief Engineer.

Distances are those of actual survey, and the average cost given is per mile of completed Main Line Track, and includes, in addition to the road bed, ties, rails and fastenings, trackage of sidings and yards (326 miles) section houses, stations, engine houses, &c., cost of surveys, right of way and bridges, and also includes 10% for Engineering and contingencies.

The following items are not included in estimate:—

St. Lawrence River Bridge, Quebec; Terminals in City of Quebec or line thereto; Terminals in City of Winnipeg, or large machine shops in that vicinity; but $90,000 included for ordinary Divisional Point at Moncton.

HUGH D. LUMSDEN,
Chief Engineer.

Ottawa, June 23rd, 1908. (455)

J. R. G.
A. M. & S.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 7

Statement Prepared by Investigating Commission showing Cost up to September 30th, 1911.

(See Page 17 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement—Showing cost of work done up to September 30th, 1911. DISTRICT "A"—LENGTH 256.61 MILES.

Extending from Moncton westerly to boundary between the Provinces of New Brunswick and Quebec.

Contract No.	County	Length of Contract	Grading	Tracks and Tracklaying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
1	Westmorland.....	50. mi.	$1,729,500	$429,000	264,900$	$9,000	$50,000	$204,700	$86,500	$2,841,600
2	Queens Sunbury.....	8. "	411,000	85,300	227,600	8,900	8,000	32,700	13,800	787,300
3	York.....	39.6 "	770,200	390,900	173,600	58,600	15,400	159,600	67,500	1,635,800
4	Carleton.....	66.4 "	2,234,100	734,500	293,900	16,100	24,000	274,300	115,900	3,692,800
5	Victoria.....	31.7 "	2,287,200	261,800	1,568,500	18,400	19,000	131,000	55,300	4,341,200
6 .	Madawaska.....	60.91 "	1,662,800	567,500	537,800	44,300	306,000	248,000	103,800	3,470,200
	TOTALS.....	256.61 "	$9,094,800	$2,537,000	$3,066,300	$155,300	$422,400	$1,050,300	$442,800	$16,678,900

Total Cost—District "A" to Sept. 30th, 1911—$16,768,900.00, or $65,300,00 per mile of Main Line.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement—Showing cost of work done up to September 30th, 1911.

DISTRICT "B".—LENGTH 584.01 MILES.

Extending from the New Brunswick Boundary to the River St. Lawrence opposite Quebec and from the City of Quebec, westerly, 374 miles all in the Province of Quebec, passing thro' the Counties of Temiscouta, Kamouraska, L'Islet, Montmagny, Bellechasse, Dorchester and Levis on the south side of the St. Lawrence River and Quebec, Portneuf and Champlain, North of the St. Lawrence River.

Contract No.	Counties	Length of Contract	Grading	Tracks and Tracklaying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
7	Temiscouata, Kamouraska, L'Islet, Montmagny, Bellechasse, Dorchester, Levis	53.84	$2,126,700	$426,400	$450,300		$65,600	$183,400	$76,300	$3,328,700
8		150.00	4,976,500	1,214,500	1,108,500		243,800	511,000	212,100	8,266,400
9A		5.37	359,300	32,600	14,400		173,900	14,200	5,800	600,200
9	Quebec	50.00	1,605,900	447,900	1,255,800	$500	367,100	170,300	70,700	3,918,200
10		100.00	7,966,800	827,100	1,968,400	37,600	27,700	340,700	141,400	11,309,700
11	Portneuf	46.40	2,746,600	368,200	548,100	12,600	12,800	158,100	65,200	3,907,600
12	Champlain	107.00	3,159,500	716,000	543,500	10,000	29,600	364,500	151,300	4,974,400
13		71 40		523,900			20,100	243,200	100,600	887,800
	TOTALS	584.01	$22,937,300	$4,556,600	$5,889,000	$60,700	$940,600	$1,985,400	$823,400	$37,193,000

Total Cost—District "B" to Sept. 30th, 1911—$37,193,000.00.

Or $63,600.00 per miles of Main Line.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement Showing cost of work done up to September 30th, 1911. DISTRICT "C.D."—LENGTH 398.02 MILES

Extending from 122 miles East of the Boundary between the Prov. of Quebec and Ontario, in a westerly direction thro' the County of Champlain in the Prov. of Quebec and thence thro' the Districts of Abbitibi and Algoma in the Prov. of Ontario to a point about 204 miles West of the Town of Cochrane.

Contract No.		Length of Contract	Grading	Tracks and Tracklaying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
13		43.56					$800.	$260,300	$58,000	$319,100
14c		78.00	$1,688,800	$598,100	$557,400	$3,100	800.	477,600	104,000	3,409,800
14d		72.00	1,937,400	586,200	717,900	61,500	800.	440,800	96,000	3,840,600
15		100.00	2,751,500	829,200	1,185,600	30,400	800.	612,300	133,300	5,543,100
16		104.46	1,696,600	793,300	346,700	1,300	900.	639,500	139,200	3,617,500
	TOTALS.....	398.02	$8,074,300	$2,806,800	$2,787,600	$96,300	$4,100.	$2,430,500	$530,500	$16,730,100

Total Cost—District "C.D" to Sept. 30th, 1911. $16,730,000.00, or $42,000.00 per mile of Main Line.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement—Showing cost of work done up to September 30th, 1911 DISTRICT "E"—LENGTH 195.19 MILES.

Extending from a point in the District of Algoma, Province of Ontario 204 miles west of the Town of Cochrane westerly 195.19 miles to a point in the District of Thunder Bay Northwest of Lake Nipigon.

Contract No.	District	Length of Contract	Grading	Tracks and Tracklaying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
17	Algoma	100.00	$688,100	$30,400		$2,100		$356,200	$113,200	$1,190,000
18		75.59	1,542,400	22,800	$321,300	1,600		267,100	84,900	2,240,100
19	Thunder Bay	19.60	423,700	6,000	2,100	400		69,800	22,200	524,200
	TOTALS	195.19	$2,654,200	$59,200	$323,400	$4,100		693,100	$220,300	$3,954,300

Total Cost—District "E" to Sept. 30th, 1911.—$3,954,300.00. Or $20,200.00 per mile of Main Line.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement—Showing cost of work done up to September 30th 1911

DISTRICT "E"—LENGTH 376.62 MILES.

Extending from a point in the District of Thumder Bay, Province of Ontario, Northwest of Lake Nipigon thro' 285 miles of Western Ontario and thro' 91 miles of the Province of Manitoba to the City of Winnipeg.

Contract No.	District	Length of Contract	Grading	Tracks and Tracklaying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
19	Thunder Bay	105.45	$3,890,700	$728,000	$153,700	$3,000	$15,800	$602,300	$172,900	$5,566,400
20		12.70	434,400	104,300	188,500	5,500	1,900	72,300	20,800	827,700
20A		11.55	890,500	271,000	255,700	202,800	1,700	65,600	18,800	1,706,100
21		246.92	16,630,100	2,880,700	1,455,900	269,400	696,900	1,413,900	406,000	23,752,900
Buildings at Transcona including Machinery						1,658,869				
The Red River Bridge.					661,631					
			$21,845,700	$3,984,000	$2,715,431	$2,139,569	$716,300	$2,154,100	618,500$	$34,173,600

Total Cost—District "F" to Sept. 30th, 1911.—$34,173,600.00, or $90,700.00 per Mile of Main Line.

NATIONAL TRANSCONTINENTAL RAILWAY.

Statement showing cost of work done up to September, 30th 1911.

SUMMARY.

District	Province	Length	Grading	Tracks and Track Laying	Bridges and Culverts	Buildings	Right of Way	Engineering	General Expenses	Total
"A"	NewBrunswick	256.61	$ 9,094,800	$ 2,537,000	$ 3,066,300	$ 155,300	$ 422,400	$1,050,300	$ 442,800	$ 16,768,900
"B"	Quebec	584.01	22,937,300	4,556,600	5,889,000	60,700	940,600	1,985,400	823,400	37,193,000
"C" & "D'	Ontario	398.02	8,074,300	2,806,800	2,787,600	96,300	4,100	2,430,500	530,500	16,730,100
"E"	Ontario	195.19	2,654,200	59,200	323,400	4,100		693,100	220,300	3,954,300
"F"	Ontario and Manitoba	376.62	21,845,700	3,984,000	2,715,431	2,139,569	716,300	2,154,100	618,500	34,173,600
Purchase from	of Surveys G. T. P.							352,190		352,190
Totals	- - -	1810.15	$64,606,300	$13,943,600	$14,781,731	$2,455,969	$2,083,400	$8,665,590	$2,635,500	$109,172,090

N. T. R.

INVESTIGATING COMMISSION

Exhibit 8

GORDON GRANT'S ESTIMATE.

(See Page 18 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY—EASTERN DIVISION.

Statement showing work done to Dec. 31st, 1912, and estimate of cost of completion.

ITEMS	Value of work done to Dec. 31st, 1912	Value of work required to complete	Total estimate of cost of work
GRADING (See note of detail of items)	$ 88,785,710.	$18,380,290.	$107,166,000.
RIGHT OF WAY AND EXPENSES	2,362,585.	579,415.	2,942,000.
RAILS AND FASTENINGS (See note)	12,404,573.	525,427.	12,930,000.
BUILDINGS (See note)	2,056,808.	2,625,192.	4,682,000.
STEEL SUPERSTRUCTURE BRIDGES Including flooring	4,996,127.	1,057,873.	6,054,000.
SURVEYS AND EXPENSES	2,943,000.	nil	2,943,000.
TRANSPORT (See note)	1,250,132.	39,868.	1,290,000.
ENGINEERING	4,206,489.	1,400,511.	5,607,000.
SUNDRY ITEMS (See note)	2,093,123.	374,877.	2,468,000.
SPRINGFIELD SHOPS. Locomotive Shops (See note)	2,731,958.	205,042.	2,937,000.
Car Shops (See note)	617,108.	683,892.	1,301,000.
PROPOSED CAR FERRY AT QUEBEC	nil	650,000.	650,000.
TERMINALS AT QUEBEC. (See note)	917,006.	6,362,994.	7,280,000.
RENTAL OF JOINT TERMINALS AT WINNIPEG	157,500.	210,000.	367,500.
HEADQUARTERS SALARIES AND EXPENSES	1,607,133.	592,867.	2,200,000.
PROPORTION OF INTEREST ON EXPENDITURE FOR CONSTRUCTION OF WINNIPEG TERMINALS	90,611.	399,689.	490,300.
TOTALS	$127,219,863.	$34,087,937.	$161,307,800.

NOTE:—

GRADING includes:—Clearing; excavation; culverts; sub-structure of bridges; tracklaying; ballasting; ties; signals; interlocking appliances; telegraph lines; fencing; water supply; track scales temporary trestles; extra work; pump houses and pumps; and ties purchased by commission on contracts numbers 9, 10 and 21.

RAILS AND FASTENINGS includes:—Frogs; switches and diamond crossings.

BUILDINGS includes:—Stations; section and tool houses; divisional point buildings.

TRANSPORT:—This item was formerly included (in statements) with "Surveys and Expenses."

SUNDRY ITEMS:—Formerly combined under heading "Engineering and Expenses" and included instruments; supplies; camp outfits; general expenses; freight and express; furniture; legal Expenses; medical service, etc., etc.

SPRINGFIELD SHOPS.—*Locomotive Shops:*—Item includes plant and equipment; water supply; sewerage system; and lighting.

Car Shops:—Item includes plant and equipment.

QUEBEC TERMINALS:—Includes line from Quebec Bridge to Quebec City; right of way; terminal facilities; and Quebec shops.

GORDON GRANT,
Chief Engineer.

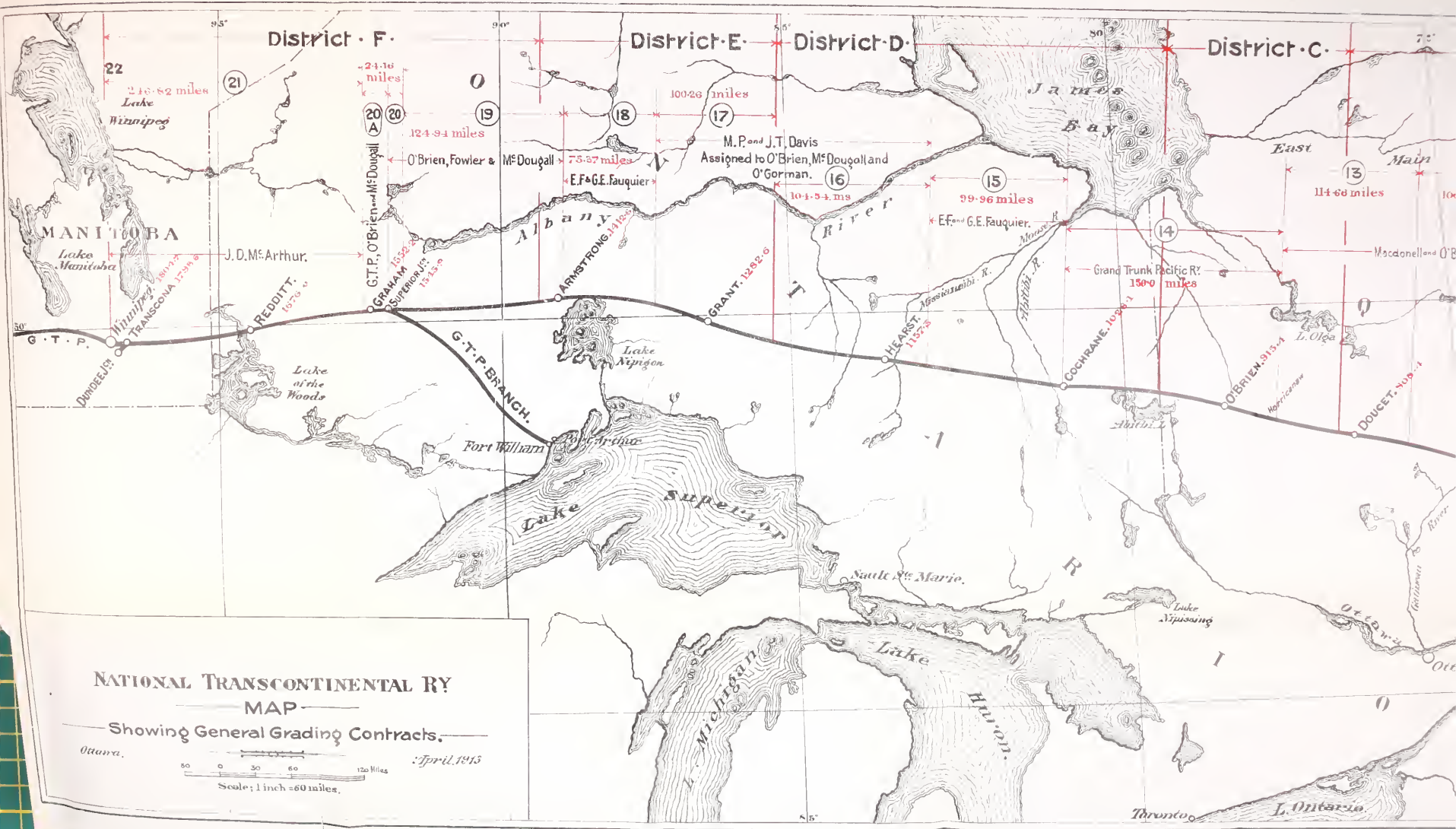
Ottawa, Ont., April 18th, 1913.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 9

Map showing Contracts, also Profile of the Railway.
(See Page 19 of Report)



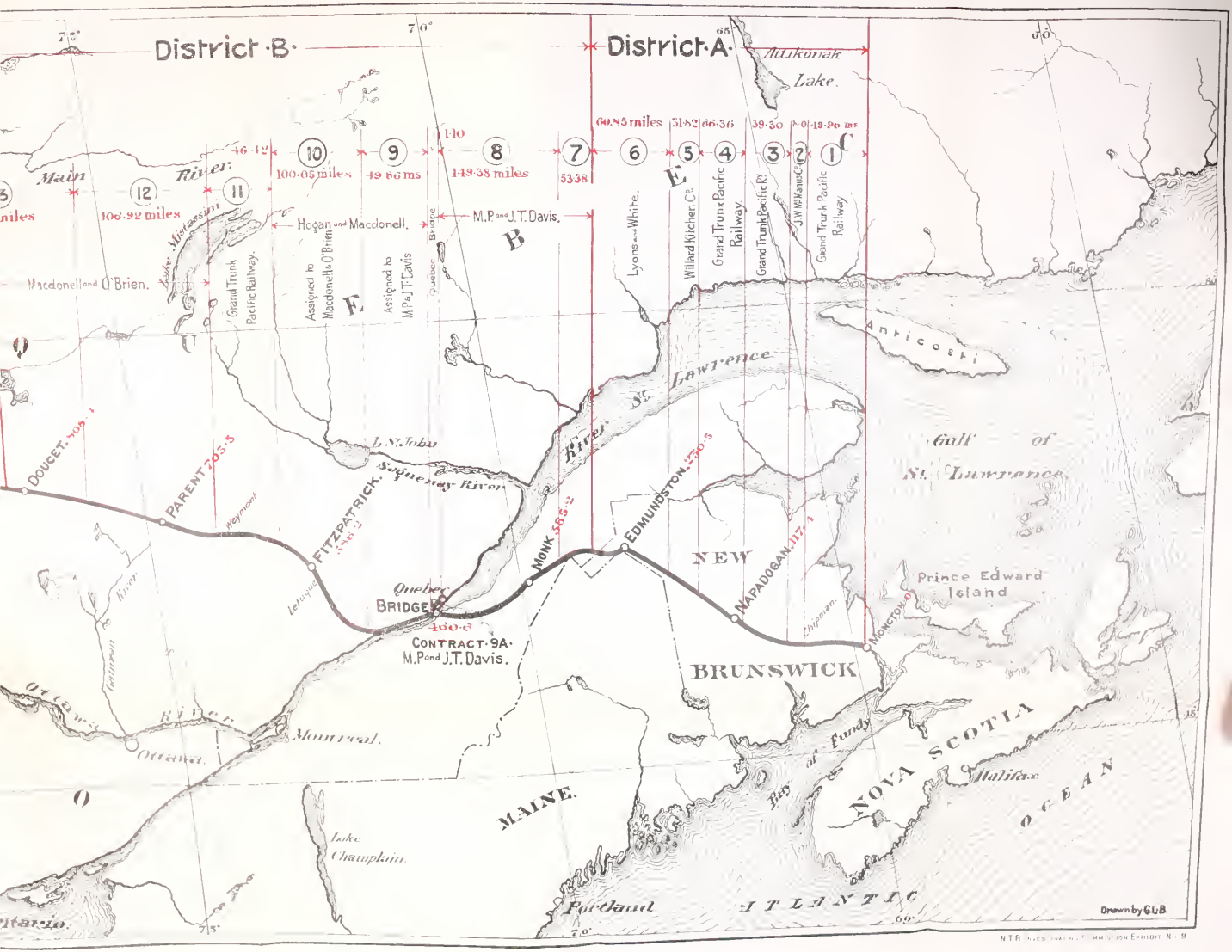
NATIONAL TRANSCONTINENTAL RY

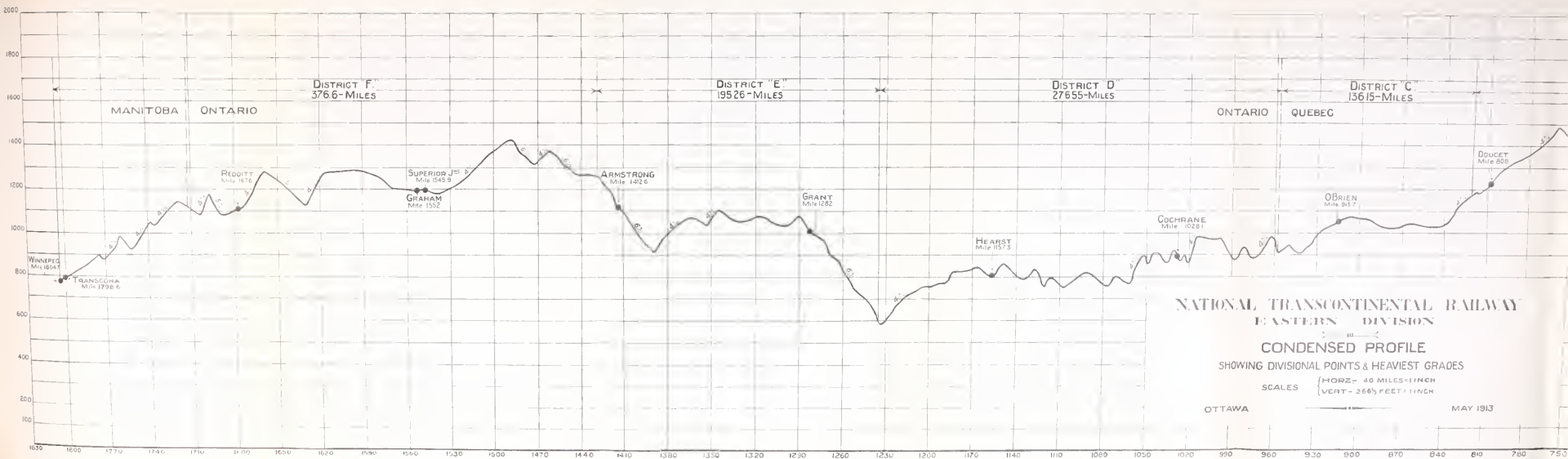
MAP

Showing General Grading Contracts.

Ottawa. April, 1913.

Scale; 1 inch = 60 miles.


District B
District A
Mikonak Lake
60.85 miles
51.82
66.36
39.30
49.90 ms
Main River
46.42
100.92 miles
100.05 miles
49.86 ms
149.38 miles
5338
110
Hogan and Macdonell.
M.P. and J.T. Davis.
Macdonell and O'Brien.
Grand Trunk Pacific Railway.
Assigned to Macdonell & O'Brien
Assigned to M.P. & J.T. Davis
Quebec Bridge
Lyons and White.
Willard Kitchen Co.
Grand Trunk Pacific Railway
Grand Trunk Pacific R.
J.W. McNaught Co.
Grand Trunk Pacific Railway
Anticosti
St. Lawrence River
Gulf of St. Lawrence
L. St. John
Saguenay River
DOUCET 409.4
PARENT 705.5
FITZPATRICK 556.3
MONK 585.2
EDMUNDSTON 270.5
NAPADOGAN 117.4
MONCTON 0
Quebec BRIDGE
460.3
CONTRACT 9A.
M.P. and J.T. Davis.
NEW BRUNSWICK
Prince Edward Island
NOVA SCOTIA
Halifax
Bay of Fundy
ATLANTIC OCEAN
MAINE.
Portland
Ottawa River
Ottawa.
Montreal.
Lake Champlain
Ontario
Drawn by G.L.B.



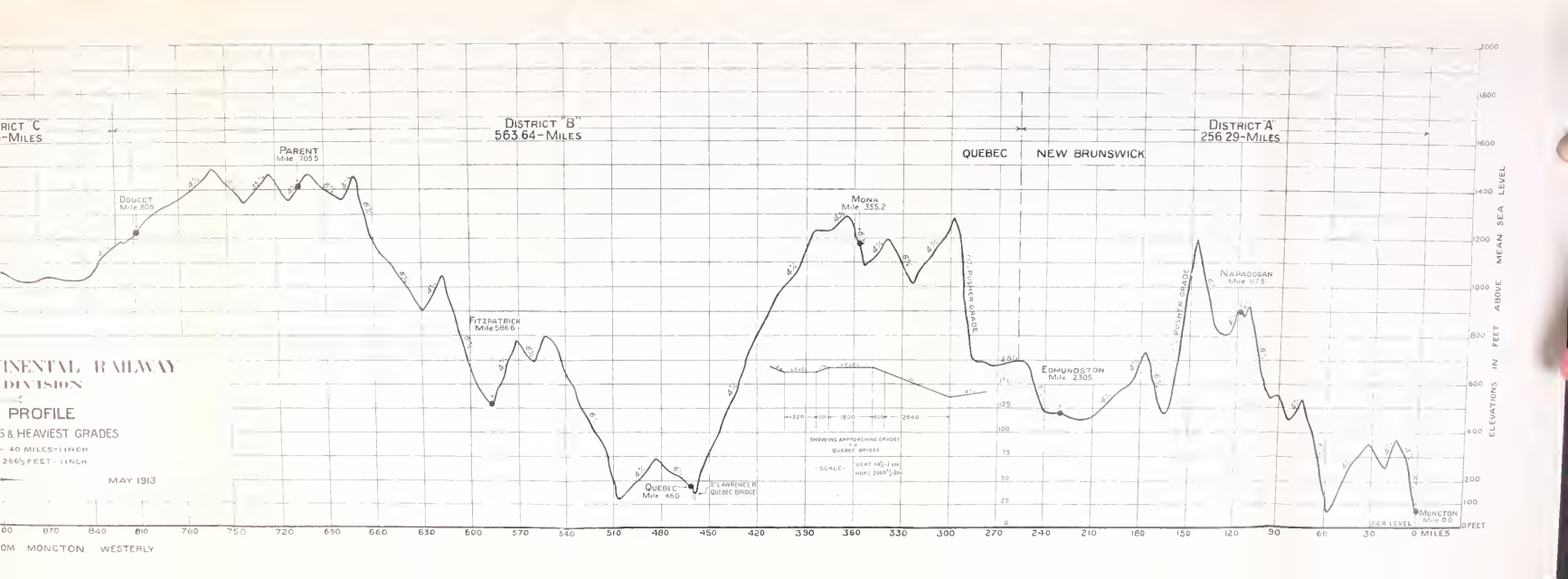
NATIONAL TRANSCONTINENTAL RAILWAY
EASTERN DIVISION

CONDENSED PROFILE

SHOWING DIVISIONAL POINTS & HEAVIEST GRADES

SCALES (HORZ- 40 MILES=1 INCH
(VERT- 2665 FEET=1 INCH

OTTAWA — MAY 1913


RICT "C"
-MILES
DISTRICT "B"
563.64-MILES
DISTRICT "A"
256.29-MILES
QUEBEC
NEW BRUNSWICK
PARENT
Mile 705.5
DOUCET
Mile 808
FITZPATRICK
Mile 586.6
QUEBEC
Mile 460
ST LAWRENCE R
QUEBEC BRIDGE
MONK
Mile 355.2
SUMMIT
EDMUNDSTON
Mile 230.5
PUMPER GRADE
NAPADOGAN
Mile 117.5
MONCTON
Mile 0.0
SEA LEVEL
ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL
2000
1800
1600
1400
1200
1000
800
600
400
200
100
0 FEET
900 870 840 810 780 750 720 690 660 630 600 570 540 510 480 450 420 390 360 330 300 270 240 210 180 150 120 90 60 30 0 MILES
SHOWING APPROACHING GRADES
QUEBEC BRIDGE
SCALE
VERT 100-1 IN
HORZ 2666 2/3 IN
TINENTAL RAILWAY
DIVISION
PROFILE
S & HEAVIEST GRADES
40 MILES=1 INCH
266 2/3 FEET-1 INCH
MAY 1913
OM MONCTON WESTERLY

N. T. R.

INVESTIGATING COMMISSION

Exhibit 10

Copy of General Specifications and Form of Tender and Contract.
(See Page 19 of Report)

(4532) Form 159. 1M.—22-2-09

THE NATIONAL TRANSCONTINENTAL RAILWAY

EASTERN DIVISION

General Specifications

AND

Form of Tender and Contract

1909

General Offices:
THE NATIONAL TRANSCONTINENTAL RAILWAY
Corry Building, Ottawa

DISTRICT

FORM OF TENDER.

To

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY,
OTTAWA.

GENTLEMEN:—

(I or we) the undersigned do hereby offer to the Commissioners to furnish all and every kind of labour, tools, machinery, implements and other plant, services and materials whatsoever necessary for the due execution and completion of, and to fully execute and complete in the most thorough, workmanlike and substantial manner on or before the

in accordance with the specifications hereto annexed and the plans, profiles and drawings prepared and to be prepared for the purposes of the work, and upon the terms and conditions set out in the printed form of contract furnished by the said Commissioners and also attached hereto, and in every respect to the satisfaction and approval of the Chief Engineer of the Commissioners, all the work of the different kinds hereinafter mentioned, set out or referred to in the said specifications, so far as the same are applicable to the classes of work hereby tendered for, and required in the construction of the following section of the Transcontinental Railway, viz:—

District Commissioners — From a point designated on the plans of the said

that is to say, clearing, close cutting, grubbing, grading, cross logging, ditching, stream and road diversions, truss, pile and trestle bridging, masonry and concrete culverts, cast iron and other pipe culverts, drains of various kinds, piers, abutments, road crossings, bridge masonry, retaining walls, embankment protection, paving, riprap, ties, cattle guards, telegraph line, track laying, surfacing, ballasting, water service, turntables and substructures, engine houses, section houses, fences, gates and all the works below sub-grade or formation level, in fact all work necessary when the bridge superstructures are in place to complete ready for operation a single track railway, with side tracks, switches, yards, terminal yards, depot grounds, spurs and other necessary and appurtenant tracks, at and for the prices set opposite the different items in the following schedule:—

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
1	Clearing, including close cutting	acre			
2	Trees cut down outside right of way	each			
3	Grubbing	acre			
4	Solid rock	c. yd.			
5	Loose rock and other materials (sec. 35 spec.)	"			
6	Common excavation	"			
7	Excavation in foundations, no coffer dams	"			
8	Excavation of foundation within coffer dams	"			
9	Overhaul all materials per c. yd. per 100 ft. over 500 ft. haul	"		0 01	
10	Piles delivered as per engineer's bill	lin. ft.			
11	Pile driving	"			
12	Sheet piling per M. ft. b.m.				
13	Wakefield type "				
14	Cross-logging, 1 ft. deep with 18-in. brush-work	acre			
15	Pole drains	lin. ft.			
16	French stone drains	"			
17	Paving in culverts (not laid in cement)	c. yd.			
18	Crib filling with stone	"			
19	Hand laid rip-rap	"			
20	Pierre Perdu rip-rap	"			
21	Piling out reserved stone from rock cuttings	"			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
22	Round logs in cribs	lin. ft.			
23	Cedar mud sills, per M. ft. b.m.				
24	Framed trestles per M. ft. b.m. except stringers				
25	Caps, walings and braces for pile trestles, per M. ft. b.m.				
26	Sawn ties and guard rails for bridges per M. ft. b.m.				
27	Stringers per M. ft. b.m.				
28	Cedar timber in culverts, 8-in. x 12-in., 10 in. x 12-in., and 12-in. x 12-in., per M. ft. b.m.				
29	Plank in highway and private road crossings per M. ft. b.m.				
30	Timber, best quality, for culverts, per M. ft. b.m.				
(a)	Timber in coffer dams or ordinary foundations	M. ft. B.M.			
(b)	Timber in caissons	"			
	Vitrified pipe culverts—				
33	15-in. diameter	lin. ft.			
34	18-in. diameter	"			
	Reinforced concrete pipe—				
36	14-in. diameter	"			
38	18-in. diameter	"			
40	24-in. diameter	"			
41	30-in. diameter	"			
42	36-in. diameter	"			
44	48-in. diameter	"			
46	60-in. diameter	"			
47	4-in. agricultural under tile drains	"			
	Cast iron pipe culverts—				
49	18-in. diameter	"			
51	24-in. diameter	"			
52	30-in. diameter	"			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
53	36-in. diameter	lin. ft.			
55	48-in. diameter	"			
57	60-in. diameter	"			
58	Concrete facing mixture 1-2, 2½-in. thick, including forms	c. yd.			
59	Concrete 1-2-4 coping course 6-in. thick, including forms	"			
60	Concrete 1-3-5, including forms	"			
61	Concrete 1-3-6, including forms	"			
61a	Concrete 1-2-5, including forms and centres	"			
62	Concrete 1-3-5 in arch culverts, including forms and centres	"			
63	Concrete 1-3-6 in arch culverts, including forms and centres	"			
64	Concrete 1-3-6 in box culverts including forms	"			
65	Concrete 1-4-8 ordinary foundations including forms	"			
66	Concrete 1-4-8 walls of building including forms	"			
67	First-class masonry	"			
68	Second-class masonry	"			
69	Third-class masonry	"			
70	Dry masonry	"			
71	Masonry in arch ring, including centering	"			
72	Track-laying in main line with ordinary frogs, switches, and sidings, including light surfacing 'A'	mile			
73	Track-laying in yards at terminals	"			
74	Train hauled surfacing 'B' no overhaul allowed	c. yd.			
(c)	Train hauled filling, including temporary trestle	c. yd.			
(d)	Overhaul on train hauled filling per cubic yard per mile over five (5) miles			0 01	
(e)	Removal of moss per cu. yd., no overhaul allowed				
75	Ballasting, no overhaul allowed	c. yd.			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
76	Ties, first-class	each			
77	Ties, second-class	"			
78	Ties for switches, sawn to dimensions per M. ft. b.m.				
79	Public road signs	each			
80	Mile posts, whistle posts, and road signs	"			
81	Semaphores at stations, complete	"			
82	Interlocking appliances, complete, eight levers including all connections, signals, etc	"			
83	Each additional lever	"			
84	Fencing	rod			
85	Gates	each			
86	Tunnels, rock sections (unlined)	lin. ft.			
87	Tunnels, lined	"			
88	Tunnels, concrete lining	c. yd.			
89	Tunnels, masonry lining	"			
90	Drainage tunnels, 4 c. yds. per ft	lin. ft.			
91	Telegraph line	mile			
92	Water tanks, 50,000 galls. complete, including foundations	each			
93	Turntables, including everything except foundations	"			
94	Track scales, including everything except foundations	"			
95	Tunnel shafts	c. yd.			
96	Iron in drift bolts	lbs.			
97	Iron in screw bolts	"			
98	Forged or cut spikes	"			
99	Cast-iron washers and separators	lbs.			
100	Cattle-guards (3 sections)	3 sections			
101	Cast-iron pile shoes	each			
102	Cast-iron water pipes of any dia. from 4" to 10" per ton of 2,000 lbs				
103	Steel imbedded in concrete	lbs.			

It shall be understood that the Commissioners are to furnish to the Contractor all the rails and fastenings, tie plates, track bolts and spikes, either on board cars at the nearest accessible point by rail or at steamboat landing, or at a point along the line of road to be constructed, as may be directed by the Chief Engineer. All other materials required for the said construction shall be supplied by the Contractor at the schedule price for same. Not more than one-fifth of the total number of ties supplied by the Contractor shall be second-class.

It shall also be understood that the construction of steel bridges, depots, shops, warehouses, freights and fuel sheds does not form a part of this contract and is not included in the work tendered for.

The Contractor at his own cost provides all wagon roads to reach and carry on the work.

The Contractor will be required to handle all material at his own expense including the unloading and loading of cars and all material must be unloaded from cars within three days after its arrival, unless special authority to the contrary is given by the Engineer. Any violation of this rule will subject the Contractor to the usual demurrage.

Accompanying this tender is an accepted cheque on the

Bank for the sum of

dollars, as required by the

advertisement annexed hereto.

And we do hereby declare and agree that in case of refusal or failure to execute the said contract with the Commissioners, and also to furnish the approved security required, to an amount not exceeding one third of the estimated total consideration of the contract, for the faithful performance of the said contract, within ten days after the acceptance of this tender the said cheque shall be forfeited to the said Commissioners as liquidated damages for such refusal or failure, and that all contract rights acquired by the acceptance of this tender shall be forfeited.

The full names and residence of all persons interested in this tender as principals are as follows:—

The undersigned further agree to conform in all respects to the terms and conditions of this tender.

Dated at the day of 190

Witness	Actual Signatures of Parties Tendering	Occupation	Residence

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CONTRACT

(Railway Construction).

This Agreement made (in triplicate) the

day of 190

Between:

(hereinafter called the "Contractor") of the First Part;
And The Commissioners of the Transcontinental Railway (hereinafter called "the Commissioners") of the Second Part;

Witnesseth as follows:—

GENERAL COVENANT.

In consideration of the covenants and agreements hereinafter contained and to be performed by the Commissioners and of the prices hereinafter mentioned, the Contractor hereby Covenants and Agrees with the Commissioners as follows:

MEANING OF WORD "WORK."

1. In this agreement the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed by the Contractor under this contract.

ENGINEER, CHIEF ENGINEER, DEFINED.

2. The words "Engineer" or "Chief Engineer" when used in this agreement or in the specifications hereunto annexed, shall mean the Chief Engineer of the Commissioners, for the time being, acting as such either directly or through the Assistant Chief Engineer, District Engineer, Division Engineer, Resident Engineer or Inspector, having immediate charge of a portion of the works limited by the particular duties entrusted to him. All instructions and directions or certificates given, or decisions made, by anyone acting under the authority of the Chief Engineer shall be subject to his approval and may be cancelled, altered, modified and changed as he may see fit. In all cases where the Contractor or the Commissioners are satisfied with the decision of the Engineer or Inspector in immediate charge of the work, an appeal to the Chief Engineer may be made.

CONSTRUCTION OF CLAUSES AS COVENANTS.

3. Whenever in this agreement it is stipulated that anything shall be done or performed by either of the parties hereto, it shall have the same effect and be construed as if the said party had entered into a covenant with the other party to do or perform the same, and as if any such covenant on the part of the Contractor had been expressly made not only on his own behalf, but also on behalf of his executors, administrators and assigns, and that any such covenant on the part of the Commissioners had been expressly made on behalf of themselves and their successors. Whenever this agreement is entered into by more than one party as parties of the first part, the word "Contractor" shall be read "Contractors" and all pronouns in this Contract or in the specifications hereunto annexed referring to the Contractor shall be read as plural, and whenever a corporation is the party of the First Part, the said pronouns shall be read accordingly.

PERFORMANCE BY CONTRACTOR.

4. The Contractor shall, at his own expense, furnish all and every kind of labour, tools, machinery, implements, and other plant, services and materials whatsoever necessary for the due execution and completion of, and shall fully construct, perform, execute and complete in the most thorough, workmanlike and substantial manner in every respect, to the satisfaction and approval of the Chief Engineer, in the manner and upon the terms and conditions herein specified and according to the specifications annexed hereto, which, for the purpose of identification, have been signed by the Contractor and the Commissioners, and form part of this agreement, and to the plans, profiles and drawings in the office of the Chief Engineer, and to any further plans or drawings in addition thereto which the Chief Engineer may find necessary to provide from time to time for the full and complete performance of the work; and shall, on or before the

finally complete and deliver to the Commissioners all the works of the different kinds hereinafter mentioned, set out or referred to in the said specifications hereto annexed in so far as the same are applicable to the classes of work hereby contracted for and shown on the said plans, profiles nad drawings prepared, and those to be prepared, for the purpose of the work required in the construction of that portion of the Eastern Division of the Transcontinental Railway being

District

that is to say, the clearing, close-cutting, grubbing, grading, cross-logging, ditching, stream and road diversions, truss, pile and trestle bridging, masonry and concrete culverts, cast iron and other pipe culverts, drains of various kinds, piers, abutments, road crossings, bridge masonry, retaining walls, embankment protection, paving, riprap, ties, cattle guards, telegraph line, tracklaying, surfacing, ballasting, water service, turntables and sub-structures, engine houses, section houses, fences, gates, and all the works below sub-grade or formation level, in fact all work necessary, when the bridge superstructures are in place, to complete ready for operation a single track railway with side tracks, switches, yards, terminal yards, depot grounds, spurs, and other necessary and appurtenant tracks; but it shall be understood that the Commissioners are to furnish to the Contractor all the rails and fastenings, tie plates, track bolts and spikes, either on board cars at the nearest accessible point by rail or at steamboat landing, or at a point along the line of road to be constructed, as may be directed by the Chief Engineer; however, steel bridges,

depots, shops, warehouses, freight and fuel sheds do not form part of the present contract. It is also agreed that not more than one-fifth of the total number of ties supplied by the Contractor shall be second-class.

TIME OF THE ESSENCE OF THE CONTRACT.

5. Time shall be of the essence of this contract.

In default of the Contractor completing the work by the date mentioned in clause 4, the Contractor shall, if required by the Commissioners, pay to the Commissioners by way of liquidated damages the sum of

for each calendar month which may elapse after the date mentioned before the work shall be so completed and delivered; it being understood that the Commissioners shall be the sole judges of what constitutes default on the part of the Contractor.

MANNER OF PERFORMANCE.

6. All of the said works shall be constructed of the best materials of their several kinds, and finished in the best and most workmanlike manner, in the manner required by and in strict conformity with the said specifications and the drawings relating thereto and the working or detail drawings which may, from time to time, be furnished (which said specifications and drawings and the working or detail drawings to be hereafter furnished are hereby declared to be part of this Contract), and to the complete satisfaction of the Chief Engineer.

SEVERAL CLAUSES OF CONTRACT TO BE READ TOGETHER.

7. The several parts of this Contract shall be taken together, to explain each other, and to make the whole consistent; and if it be found that anything has been omitted or misstated, which is necessary for the proper performance and completion of any part of the work herein mentioned and described, the Contractor will, at his own expense, execute the same as though it had been inserted and properly described, and the correction of any such error or omission shall not be deemed to be an addition or deviation from the works hereby contracted for.

COMMENCEMENT AND PROSECUTION OF WORK.

8. The said work shall be commenced immediately after the execution of this Agreement and shall be proceeded with continuously and diligently, and under the personal supervisiou of the Contractor, until completed. The work shall be carried on and prosecuted in all its several parts in such a manner and at such points and places as the Engineer shall from time to time direct and to his satisfaction, but always according to the provisions of this agreement, and, if no direction is given, then in a careful, prompt and workmanlike manner, according to this Agreement. The Contractor shall make and keep open for use in safe condition, all crossings and approaches wherever the line of railway traverses any public or private road, and shall alter and amend such roads, crossings and approaches whenever required by the Engineer in charge of the work, during the construction of the line.

AGREEMENT NOT TO BE ASSIGNED.

9. This Agreement shall not be assigned without the consent of the Commissioners, nor shall the said work or any part thereof be subcontracted, without the written consent of the Commissioners to every such assignment or subcontract.

CONTROL OF THE WORK BY ENGINEER.

10. The Contractor shall in all things conform to and comply with the instructions of the Engineer. All work and material shall be subject to the approval of the Engineer, and any work or material which, in the opinion of the Engineer, is not of the character, quality, dimensions or design required by the plans or specifications, or which is in the judgment of the Engineer otherwise in any manner defective, imperfect, or insufficient, shall be replaced or remedied when pointed out to the Contractor by the Engineer, and shall be made good and sufficient by the Contractor, at his own expense, and to the satisfaction of the Engineer, who shall have the power and whose duty it shall be, to have any defective work or material taken out and rebuilt, or replaced at the expense of the Contractor. Any omission by the Engineer to disapprove of or reject any insufficient or imperfect work at the time of any estimate shall not be deemed an acceptance of such work or material.

CHANGES AND EXTRA WORK.

11. The Engineer shall be at liberty at any time, either before the commencement or during the construction of the works or any portion thereof, to order any extra work to be done, and to make any change or alteration which he may deem expedient in the alignment or grade of the railway, or in the dimensions, nature, location, or position of the works, or of any part or parts thereof, or in any other thing connected with the works, whether or not, such changes increase or diminish the work to be done, or the cost of doing the same, and the Contractor shall immediately comply with all written requisitions of the Engineer in that behalf, but the Contractor shall not make any change in or addition to, or omission, or deviation from the works, and shall not be entitled to any payment for any change, addition or deviation, or any extra work, unless such changes, addition, omission, deviation, or extra work, shall have been first directed in writing by the Engineer, and notified to the Contractor in writing, and the price to be paid for such extra work shall be previously fixed by the Engineer by agreement with the Contractor, or in default of such agreement, shall be as provided by Section 35.

CLAUSES OF CONTRACT TO APPLY TO CHANGES AND EXTRA WORK.

12. All the clauses of this contract shall apply to any changes, additions, omissions, deviations, or extra work, in like manner, and to the same extent as to the works contracted for, and no changes, additions, deviations, omissions, or extra work shall annul or invalidate this Contract.

NO CLAIM FOR LOSS OF PROFITS.

13. If any change or deviation in, or omission from the works be made by which the amount of work to be done shall be decreased, no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect therefor.

CLAIMS FOR EXTRA WORK TO BE PRESENTED AT END OF MONTH.

14. All claims for extra or additional payment must be presented to the Engineer for allowance at the end of the month in which the work or material in respect of which the same is claimed shall have been done or furnished, and shall, if allowed by the Engineer, be included in the estimate for that month, otherwise all claims therefor shall be deemed to be absolutely waived by the Contractor and the Commissioners shall not be required to make such or any payment for or in

respect of such work or material, unless, in the judgment of the Commissioners under the circumstances of the case, it is reasonable and proper to do so.

ENGINEER SOLE JUDGE.

15. The Engineer shall be the sole judge of work and material in respect of both quantity and quality, and his decision on all questions in dispute with regard to work or material shall be final, and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractor be entitled to payment for the same, unless the same shall have been executed to the satisfaction of the Engineer, as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

PRICES IN SCHEDULE TO INCLUDE ALL THINGS NECESSARY FOR EXECUTION AND COMPLETION OF WORK.

16. The prices to be paid for the different kinds of work set out or referred to in the list or schedule of prices are intended to and shall include not merely the particular kind of work or materials mentioned in the said list or Schedule but also all and every kind of work, labour, tools and plant, materials, articles and things whatsoever necessary for the full execution and completion ready for use of the respective portions of the works, to the satisfaction of the Engineer. And in case of dispute as to what work, labour, tools and plant, materials, articles and things, are or are not so included, the decision of the Engineer shall be final and conclusive.

FOREMAN.

17. A competent foreman shall be kept on the ground by the Conrtactor during all the working hours, to receive the orders of the Engineer, and should the person so appointed be deemed by the Engineer incompetent, or conduct himself improperly, he may be discharged by the Engineer, and another shall be at once appointed in his stead; such foreman shall be considered as the lawful representative of the Contractor, and shall have full power to carry out all requisitions and instructions of the Engineer.

MATERIAL OBJECTED TO MUST BE REMOVED.

18. In case any materials, or other things in the opinion of the Engineer, which are not in accordance with the several parts of this Contract or are not sufficiently sound or are otherwise unsuitable for the respective works, shall be used for or brought to the intended works, or any part thereof, or in case any work shall be improperly executed, the Engineer may require the Contractor to remove the same, and to provide proper material or other things, or to properly re-execute the work, as the case may be; and thereupon the Contractor shall and will immediately comply with the said requisition, and if twenty-four hours shall elapse and such requisition shall not have been complied with, the Engineer may cause such materials or other things, or such work, to be removed and, in any such case, the Contractor shall pay the Commissioners all such damages and expense as shall be incurred in the removal of such materials, or other things, or of such work, or the Commissioners may, in their discretion, retain and deduct such damages adn expenses from any amounts payable to the Contractor.

MACHINERY AND PLANT TO BE PROPERTY OF COMMISSIONERS DURING CONSTRUCTION.

19. All machinery and other plant, materials and things whatsoever provided by the Contractor for the works hereby contracted for, and not rejected under the provisions of the last preceding clause, shall from the time of their being so provided become, and, until the final completion of the said work, shall be the property of the Commissioners for the purpose of the said works, and the same shall on no account be taken away, or used or disposed of except for the purpose of the said works, without the consent in writing of the Engineer, and the Commissioners shall not be answerable for any loss or damage whatsoever which may happen to such machinery or other plant, materials or things, provided always that upon the completion of the works and upon payment by the Contractor of all such moneys, if any, as shall be due from him to the Commissioners, such of the said machinery and other plant, materials and things as shall not have been used and converted in the works and shall remain undisposed of, shall, upon demand, be delivered up to the Contractor.

POWER TO TAKE WORK OUT OF CONTRACTOR'S HANDS.

20. In case the Contractor shall make default or delay in diligently continuing to execute or advance the works to the satisfaction of the Engineer, and such default or delay shall continue for six days after notice in writing shall have been given by the Engineer to the Contractor requiring him to put an end to such default or delay, or in case the Contractor shall become insolvent, or make an assignment for the benefit of creditors, or neglect either personally or by a skilful and competent agent to superintend the works, then in any of such cases the Commissioners may take the work out of the hands of the Contractor and employ such means as they may see fit to complete the work, and the Contractor shall have no claim for any further payment in respect of the works performed, but shall nevertheless remain liable for all loss or damage which may be suffered by reason of the non-completion by him of the works; and all materials and things whatsoever, and all horses, machinery and other plant provided by him for the purposes of the works, shall remain and be considered as the property of the Commissioners for the purpose and according to the provisions and conditions contained in paragraph 22 hereof.

ABANDONMENT OF WORK BY CONTRACTOR.

21. If the work to be done under this Agreement shall be abandoned or be assigned by the Contractor without the consent of the Commissioners, or if the Contractor shall lose control of the work for any cause, excepting the acts of God or of the public enemy, or if at any time the Chief Engineer shall be of the opinion and shall so certify in writing to the Commissioners that the Contractor is wilfully and persistently violating any of the conditions or covenants of this Contract, or is not executing said Contract in good faith, the Commissioners may take the work out of the hands of the Contractor and may employ such means as they may see fit to complete the work, and all provisions of section 20 of the Agreement shall thereupon apply and the Commissioners shall have in regard to the said work all the powers therein provided.

POWER TO EMPLOY ADDITIONAL MEN, HORSES, ETC., AND PLANT.

22. If the Engineer shall at any time consider that the number of workmen, or horses, or the quantity of machinery, or other plant, or the quantity of proper

materials, respectively employed, provided or supplied by the Contractor on or for the said works, is insufficient for the advancement thereof towards completion within the limited time, or that the works are, or some part thereof is, not being carried on with due diligence, then and in every such case the Engineer may, by written notice to the Contractor, require him to employ or provide such additional workmen, horses, or machinery or such additional or other plant or materials as the Engineer may think necessary, and, in case the Contractor shall not thereupon within three days, or such other longer period as may be fixed by any such notice, in all respects comply with such requisition, then the Engineer may either on behalf of the Commissioners, or, if he sees fit, may as the agent of and on account of the Contractor, but in either case at the expense of the Contractor, provide and employ such additional workmen, horses, or machinery or such additional or other plant, or material or any portion thereof, respectively, as he may think proper, and may pay such additional workmen such wages, and for such additional horses, machinery or such additional or other plant and machinery respectively such prices as he may think proper, and all such wages and prices respectively shall thereupon at once be repaid by the Contractor, or the same may be retained and deducted out of any sum that may then or thereafter be or become due from the Commissioners to the Contractor, and the Commissioners may use in the execution or advancement of the said works not only the horses, machinery and other plant and other materials so in any case provided by anyone on their behalf, but also all such as may have been or may be provided by or on behalf of the said Contractor.

WORKS AT THE RISK OF CONTRACTOR UNTIL COMPLETION.

23. The Contractor shall be at the risk of, and shall bear, all loss or damage whatsoever, from whatsoever cause arising, which may occur to the works, or any of them, until the same shall be fully and finally completed and delivered up to and accepted by the Commissioners; and, if any such loss or damages shall occur before the final completion, delivery and acceptance, the Contractor shall immediately, at his own expense, repair, restore and re-execute the work so damaged.

DAMAGE GENERALLY.

24. The Contractor and his agents, labourers and all employed by him, or under his control, shall use due care that no person or property is injured or any rights infringed in the prosecution of the said works, and the Contractor shall be responsible for all damages claimable by any person or corporation whatsoever in respect of any injury to persons or property or in respect of any infringement of any right whatsoever, including damage by fire occasioned in his carrying on of the said works, or by any neglect or misfeasance or nonfeasance on his part or on the part of his servants or employees, and shall and will, at his own expense, make such temporary provisions as may be necessary for the protection of persons, or of lands, buildings, animals or other property, or to prevent the interruption of the traffic on any public or private road, or for the uninterrupted enjoyment of all rights of persons or corporations in and during the performance of the said works.

STOPPAGE OF WORK AND REDUCTION OF FORCE.

25. The Commissioners shall have the right to suspend operations from time to time at any particular point or points or upon the whole of the works, or to direct that the force employed on the works shall be diminished, and the Contractor, upon being requested in writing so to do by the Commissioners, shall stop the work or reduce the force, as the case may be, in accordance with such

written request, and the Contractor shall have no claim for damages by reason thereof. Such writing shall be signed by the Engineer and delivered to the Contractor, or to some person on the work representing the Contractor, at least ten days previous to such stoppage of work or reduction of force.

EXTENSION OF TIME IN CASE OF STOPPAGE OF WORK.

26. If there be any stoppage of the said work upon the written directions of the Commissioners or if its progress be materially delayed, from want of location, or staking of the line, or work of securing of the right of way, or by reason of any act or neglect of any of the Engineers or agents or employees of the Commissioners, the time herein specified for completing the said work shall be extended for a period of time equal to the time of such stoppage or delay, and the Contractor shall have no further or other claim therefor, or for or in respect of anything arising therefrom or caused thereby. The right of the Contractor to such extension shall be deemed to have been waived unless a claim therefor, stating the occasion and nature thereof, shall be made by him in writing, delivered to the Commissioners at the time of such stoppage or delay. At any time after operations have been suspended either in whole or in part, such operations may be again resumed and again suspended and resumed as the Commissioners may deem proper, and the Contractor, upon receiving written notice on behalf of the Commissioners that the suspended operations are to be resumed, shall at once resume the prosecution of the work under this contract and diligently carry on the same.

TOTAL SUSPENSION WITH THE CONSENT OF THE COMMISSIONERS.

27. In case of a total suspension of all work under this Agreement without any fault, default, collusion or procurement of the Contractor for a longer period than days, unless such suspension shall have been caused by the winter season or protracted rigor of weather, it shall be the duty of the engineer to make a final estimate of the work done according to the terms of this Agreement, and to make a return thereof to the Commissioners when the amount found by the Engineer to be then due for work done, together with all percentages retained up to that time, except as herein otherwise provided, shall be paid to the Contractor.

28. No delay within or beyond the period herein specified for completing the said work shall vitiate or void this Contract, or any part thereof, or the obligation hereby imposed upon the Contractor, or shall make void or in anywise impair or effect any current or other bond or security for the performance of this Contract, and all the Covenants and Agreements in this Contract and in the said Specifications contained shall apply to this Contract until the said work is finally completed and accepted, notwithsanding the fact that such work is not completed within the time specified herein for such completion.

CONTRACTORS TO PAY FOR LABOUR PROMPTLY.

29. The Contractor shall promptly pay for all labour, services and material in or about the construction of the work and all payments for such purpose shall be made by the Contractor at least as often as payments are made by the Commissioners to the Contractor, and in the event of failure by the Contractor at any time to do so, the Commissioners may retain from any moneys due or to become due to the Contractor such amount of money as the Chief Engineer may deem sufficient to make such payments. If the Engineer reports that there is reason to fear that any such payments will not be promptly made by the Contractor, the Commissioners may pay for such labour, services and material from

any date to any date and to any amount which may be payable and may charge the same to the Contractor, and the Contractor covenants with the Commissioners to repay at once all and every sum so paid. Before final settlement is made between the parties hereto for work done and materials furnished under this Contract, the Contractor shall and will produce and furnish evidence satisfactory to the Commissioners that the said work and any other property of the Commissioners upon which said work may have been constructed and all structures, are free and clear from all liens for labour, workmanship, materials or otherwise and that no claim then exists in respect of which a lien upon the said work or property of the Commissioners could or might attach. And the Contractor shall protect and hold harmless the Commissioners and all their porperty from any and all kinds of liens accruing from labour and services performed and material furnished or otherwise and any of the same in or about the said work.

DAMAGE BY FIRE.

30. Special precautions must be taken by the Contractor at his own expense to prevent fire; and the labourers in his employ shall be subject to the direction of the Engineer in the event of their aid being required by the Engineer to extinguish forest fires occurring in proximity of the right-of-way.

The Contractor shall conform to the fire regulations adopted by the Commissioners and also to the laws and regulations respecting fires in the different Provinces wherein the work is being performed.

Any damage by fire that may occur to buildings or structures during construction, must be made good by the Contractor, who must keep such structures fully insured until the same have been completed and accepted by the Commissioners. The operation or occupation by the Commissioners of a portion of the work, before the completion of the whole, is not to be considered as an acceptance of the same by the Commissioners. The premiums for fire insurance shall be payable by the Contractor, and the policies are to be made payable to the Commissioners or in such form as they may direct, the loss being made payable as the interest of the Contractor and of the Commissioners respectively may appear and the policy or policies shall be deposited with the Chief Engineer of the Commissioners until the completion and acceptance of the work.

INTOXICATING LIQUORS.

31. The Contractor shall not bring nor permit to be brought anywhere on or near the said works any spirituous or intoxicating liquors, and if any foreman, labourer or other employee or sub-contractor in the opinion of the Engineer, be intemperate, disorderly, incompetent, wilfully negligent or dishonest in the performance of his duties, he shall, on the direction of the Engineer, be forthwith discharged and the Contractor shall not permit or employ to remain upon the work any person who shall have been discharged from the said work for any or all of the said causes.

32. Upon the completion of the work, the Contractor shall remove all temporary structures, fill up all holes and trenches, level all mounds or heaps of earth that may have been dug or built by him in the execution of the work or incident thereto and shall remove and clean away all surplus and waste materials or rubbish of whatever kind remaining on or about the works, and deposit such refuse material at such place as the Engineer may designate.

COMMISSIONERS COVENANT TO PAY.

33. In consideration of the faithful performance by the Contractor of all and singular the covenants and agreements herein contained, the Commissioners hereby covenant and agree with the Contractor that they will well and truly pay him on the full completion by him of all the work herein specified within the time specified and limited for the completion thereof to the satisfaction and subject to acceptance by their Chief Engineer and subject also as herein provided, the following sums and prices, namely:—

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
1	Clearing, including close cutting	acre			
2	Trees cut down outside right of way	each			
3	Grubbing	acre			
4	Solid rock	c. yd.			
5	Loose rock and other materials (sec. 35 spec.)	"			
6	Common excavation	"			
7	Excavation in foundations, no coffer dams	"			
8	Excavation of foundation within coffer dams	"			
9	Overhaul all materials per c. yd. per 100 ft. over 500 ft. haul	"		0 01	
10	Piles delivered as per engineer's bill	lin. ft.			
11	Pile driving	"			
12	Sheet piling per M. ft. b.m.				
13	Wakefield type "				
14	Cross-logging, 1 ft. deep with 18-in. brush-work	acre			
15	Pole drains	lin. ft.			
16	French stone drains	"			
17	Paving in culverts (not laid in cement)	c. yd.			
18	Crib filling with stone	"			
19	Hand laid rip-rap	"			
20	Pierre Perdu rip-rap	"			
21	Piling out reserved stone from rock cuttings	"			
22	Round logs in cribs	lin. ft.			
23	Cedar mud sills, per M. ft. b.m.				

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
24	Framed trestles per M. ft. b.m. except stringer				
25	Caps, walings and braces for pile trestles, per M. ft. b.m.				
26	Sawn ties and guard rails for bridges per M. ft. b.m.				
27	Stringers per M. ft. b.m.				
28	Cedar timber in culverts, 8-in. x 12-in., 10 in. x 12-in., and 12-in. x 12-in., per M. ft. b.m.				
29	Plank in highway and private road crossings per M. ft. b.m.				
30	Timber, best quality, for culverts, per M. ft. b.m.				
(*a*)	Timber in coffer dams or ordinary foundations.	M ft. B.M.			
(*b*)	Timber in caissons	"			
	Vitrified pipe culverts—				
33	15-in. diameter	lin. ft.			
34	18-in. diameter	"			
	Reinforced concrete pipe—				
38	18-in. diameter	"			
40	24-in. diameter	"			
41	30-in. diameter	"			
42	36-in. diameter	"			
44	48-in. diameter	"			
46	60-in. diameter	"			
47	4-in. agricultural under tile drain	"			
	Cast iron pipe culverts—				
49	18-in. diameter	"			
51	24-in. diameter	"			
52	30-in. diameter	"			
53	36-in. diameter	"			
55	48-in. diameter	"			
57	60-in. diameter	"			
58	Concrete facing mixture 1-2, 2½-in. thick, including forms	c. yd.			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
59	Concrete 1-2-4 coping course 6-in. thick, including forms	c. yd.			
60	Concrete 1-3-5, including forms	"			
61	Concrete 1-3-6, including forms	"			
61a	Concrete 1-2-5, including forms and centres	"			
62	Concrete 1-3-5 in arch culverts, including forms and centres	"			
63	Concrete 1-3-6 in arch culverts, including forms and centres	"			
64	Concrete 1-3-6 in box culverts including, forms	"			
65	Concrete 1-4-8 ordinary foundations including forms	"			
66	Concrete 1-4-8 walls of building including forms	"			
67	First-class masonry	"			
68	Second-class masonry	"			
69	Third-class masonry	"			
70	Dry masonry	"			
71	Masonry in arch ring, including centering	"			
72	Track-laying in main line with ordinary frogs, switches, and sidings, including light surfacing 'A'	mile			
73	Track-laying in yards at terminals	"			
74	Train hauled surfacing 'B' no overhaul allowed	c. yd.			
(c)	Train hauled filling, including temporary trestle	"			
(d)	Overhaul on train hauled filling per cubic yard per mile over five (5) miles			0 01	
(e)	Removal of moss per cu. yd., no overhaul allowed				
75	Ballasting, no overhaul allowed	c. yd.			
76	Ties, first-class	each			
77	Ties, second-class	"			
78	Ties for switches, sawn to dimensions per M. ft. b.m.				
79	Public road signs	each			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
80	Mile posts, whistle posts, and road signs	each			
81	Semaphores at stations, complete	"			
82	Interlocking appliances, complete, eight levers including all connections, signals, etc	"			
83	Each additional lever	"			
84	Fencing	rod			
85	Gates	each			
86	Tunnels, rock sections (unlined)	lin. ft.			
87	Tunnels, lined	"			
88	Tunnels, concrete lining	c. yd.			
89	Tunnels, masonry lining	"			
90	Drainage tunnels, 4 c. yds. per ft	lin. ft.			
91	Telegraph line	mile			
92	Water tanks, 50,000 galls. complete, including foundations	each			
93	Turntables, including everything except foundations	"			
94	Track scales, including everything except foundations	"			
94	Tracks cales, including everything except foundations	"			
95	Tunnel shafts	c. yd.			
96	Iron in drift bolts	lbs.			
97	Iron in screw bolts	"			
98	Forged or cut spikes	"			
99	Cast-iron washers and separators	lbs.			
100	Cattle-guards (3 sections)	3 sections			
101	Cast-iron pile shoes	each			
102	Cast-iron water pipes of any dia. from 4" to 10" per ton of 2,000 lbs				
103	Steel imbedded in concrete	lbs.			

34. Cash payments equal to about ninety per cent. of the value of the work done, approximately made up from returns of progress measurements and computed at the prices agreed upon, or determined under the provisions of this agreement, will be made to the Contractor monthly, on the written certificate of the Engineer that the work for, or on account of which, the certificate is granted has been duly executed to his satisfaction, and stating the value of such work computed as mentioned, and upon approval of such certificate by the Commissioners; and the said certificate and such approval thereof shall be a condition precedent to the right of the Contractor to be paid the said ninety per cent., or any part thereof. The remaining ten per cent. shall be retained until the final completion of the whole work to the satisfaction of the Chief Engineer for the time being having control over the work; and within two months after such completion the remaining ten per cent. will be paid; and the written certificate of the Engineer, certifying to the final completion of the said works to his satisfaction, shall be a condition precedent to the right of the contractor to receive or to be paid the said remaining ten per cent., or any part thereof; provided, however, that if and when it is shewn by the Contractor to the satisfaction of the Commissioners that the application of the said ten per cent. or any part thereof will enable or hasten the completion of the work, and that the same will be so applied; and if and when, in the opinion of the Commissioners, it appears that the deposit made by the Contractor as security for the performance of this Contract is ample security for the completion of the work, the said ten per cent. or any part thereof may be released by the Commissioners in such instalments as may from time to time be agreed upon. The Commissioners shall be at liberty from time to time to take over as completed any portion of the work certified to by the Engineer as having been completed, and the Contractor shall, thereupon, be entitled to payments in full for the work so completed in like manner, and subject to the same conditions, as if the said completed portion comprised the whole work to be done. The Commissioners shall be entitled from time to time to the use of any portion of the line of railway not theretofore accepted as completed under the terms thereof for the transportation of all steel superstructures or other materials, and no such use of any part of the said railway shall be deemed to be any acceptance or taking possession thereof.

PRICE FOR EXTRA WORK.

35. In addition to the foregoing contract price, the Commissioners will pay to the Contractor for extra work or for work done under written orders of the Engineer, not covered by this Agreement, but done in the proper execution of this Contract, and for which prices are not named herein, the actual cost of such work, with an additional ten per cent. on the cost of labour and material for the use of tools, Contractor's plant, superintendence and profit, but such actual cost shall not exceed the reasonable market value of such labour and material as the case may be.

36. Where, in the opinion of the Chief Engineer, the work done is not, having regard to the nature and character of the work remaining to be performed, of sufficient value to justify computation at the prices agreed upon and determined under the provisions of this agreement, it shall be competent for the Chief Engineer, in certifying the value of the work done for the purpose of such payment, to disregard the prices so agreed upon or determined, and to compute and certify its relative and proportionate value having regard to the nature and character of the work remaining to be performed; in which case the Contractor shall only be entitled to receive ninety per cent. of the value of the work done as stated in such certificate, and he shall not be paid the difference between ninety per cent of the value of the work done as so ascertained and certified, and ninety per cent of the value of such work according to the prices stipulated therefor under the provisions

of this Agreement, until such time as the Chief Engineer, by reason of the performance of additional work of greater relative value, shall certify that the Contractor is entitled to receive the same.

37. It is intended that every allowance to which the Contractor is fairly entitled will be enbraced in the Engineer's monthly certificates; but should the Contractor at any time have claims of any description which he considers are not included in the progress certificates, it will be necessary for him to make and repeat such claims in writing to the Engineer within thirty days after the date of the despatch to the Contractor of each and every certificate in which he alleges such claims to have been omitted.

38. The Contractor in presenting claims of the kind referred to in the last preceding paragraph must accompany them with satisfactory evidence of their accuracy, and the reason why he thinks they should be allowed. Unless such claims are thus made during the progress of the work, within thirty days, as in the preceding clause, and repeated, in writing every month, until finally adjusted or rejected, the Contractor shall have no claim upon the Commissioners in respect thereof.

39. The progress measurements and progress certificates shall not in any respect be taken as binding upon the Commissioners, or as final measurements or as fixing final amounts; they are to be subject to the revision of the Engineer in making up his final certificate, and they shall not in any respect be taken as an acceptance of the work or release of the Contractor from responsibility in respect thereof, but he shall at the conclusion of the works deliver over the same in good order, according to the true intent and meaning of this Agreement.

CONTRACTOR'S INFORMATION.

40. This Agreement is made and entered into by the Contractor for the consideration herein expressed, solely on his own knowledge, information and judgment of the character and topography of the country, its streams, water courses and rainfalls and subject to the same, and upon information derived from other sources than the Commissioners, its officers or agents, of and respecting the nature and formation of the property upon which the said work is to be done, or the character, quantities, or location of the material required to be removed or to be used in forming the roadbed for the said railway, and the Contractor does not rely upon the information given or statement or representation made to him in connection with the said contract by the Commissioners or any of its officers or agents. The Contractor further declares and agrees that the plans, maps and profiles of the said work, furnished by the Commissioners are given only for the purpose of general information.

41. The Contractor shall not have nor make any claim or demand against the Commissioners or file a petition of right for any damage which he may sustain by reason of any delay in the progress of the work, arising from the acts of any of the Commissioners' agents, and it is agreed that, in the event of any such delay, the Contractor shall have such further time for the completion of the works as may be fixed in that behalf by the Commissioners.

42. No action shall be brought against the Commissioners upon this Agreement, or for any breach of any covenants herein contained, or for any work done or claimed to be done or for damages arising out of or by reason of this Agreement, but the remedy of the Contractor shall only be by way of Petition of Right to His Majesty the King, and it is hereby agreed that all matters of difference arising between the parties hereto upon any matter connected with or arising out of this Agreement, the decision whereof is not hereby especially given to the Engineer, shall be referred to the Exchequer Court of Canada.

43. This Contract is hereby made subject to the express condition that no Member of the Senate or of the House of Commons of Canada shall be a party to or concerned or interested in any contract with the Commissioners for the construction of any part of the Eastern Division of the National Transcontinental Railway, or shall be a shareholder in any incorporated company having any such contract.

44. The Contractors will protect and will not remove or destroy, or permit to be removed or destroyed, the stakes, buoys and other marks placed on or about the said works by the Engineers of the works, and shall furnish the necessary assistance to correct or replace any stake or mark which through any cause may have been removed or destroyed.

45. Any notice or other communication mentioned in this Contract to be notified or given to the Contractor shall be deemed to be well and sufficiently notified or given if the same be left at the Contractor's office or mailed in any Post Office to the Contractor or Foreman, addressed to the address mentioned in this Contract, or to the Contractor's last known place of business.

46. The Contractor shall, in connection with the whole of the said work, as far as practicable, use only material, machinery, plant, supplies and rolling stock manufactured or produced in Canada, provided same can be obtained as cheaply and upon as good terms in Canada as elsewhere, having regard to quality and price.

47. All mechanics, labourers, or other persons who perform labour for the purposes of the construction of the works hereby contracted for shall be paid such wages as are generally accepted as current for competent workmen in the district in which the work is being performed, and, if there is no current rate in such district, then a fair and reasonable rate, and, in the event of a dispute arising as to what is the current or a fair and reasonable rate, it shall be determined by the Commissioners, whose decision shall be final.

48. This Agreement is subject to the regulations now in force or which may at any time hereafter be in force during the construction of the works hereby contracted for, made under the authority of the Department of Labour and which are or shall be applicable to such works.

49. All the works carried on under this Agreement shall be subject to the provisions of the Act respecting the Preservation of Health on Public Works and to all regulations made or to be hereafter made pursuant to the said Act, or by any other lawful authority, and applicable to such works, and to any regulations which may be adopted by the Commissioners in reference to sanitation or the preservation of health on public works.

50. The Contractor shall at his own expense make adequate arrangements for the medical and sanitary supervision of all his employees, and shall for that purpose employ the necessary duly qualified medical practitioners, furnish and provide all necessary medicines, surgical instruments, and hospital accommodation to the satisfaction of the Chief Engineer.

The duties of the medical staff shall include not only the attendance on sick or injured men, but the inspection of the sanitary arrangements of all camps, dwellings and works, at least once a month, or oftener, if, in the opinion of the Engineer, it is necessary.

In order to compensate the Contractor for such supervision he shall deduct from the wages of every man in his employment in the district or districts in which this contract is situated

per month, or a proportional rate for a less period.

It shall be optional on the part of the Commissioners, should they see fit to do so, to take over the medical and sanitary supervision of all men, camps, dwellings and works, and should they elect so to do the Contractor shall deduct from the wages of all employees as before stated the sum of

per month,

or a proportional rate for a less period, and shall furnish to the Commissioners at the end of each month a full and correct statement of all such deductions, and the Commissioners shall subtract the total amount of such deductions from the moneys due or to become due to the Contractor on account of estimates for that month.

51. The Contractor shall observe and comply with all regulations made by any lawful authority and with all regulations of the Commissioners and instructions from the Engineer of the said works, from time to time during the construction made or given with reference to the prevention and extinguishing of fires, and shall pay all wages and other outlay occasioned by such regulations and instructions.

52. It is distinctly declared that no implied contract of any kind whatsoever, by or on behalf of the Commissioners, shall arise or be implied from anything in this contract contained, or from any position or situation of the parties at any time, it being clearly understood and agreed that the express contracts, covenants and agreements herein contained and made by the Commissioners, are and shall be the only contracts, covenants and agreements upon which any rights against them are to be founded.

In Witness Whereof the parties hereto have herewith caused these Presents to be signed and sealed on the day and year first above written.

Signed, Sealed and Delivered,
by the Contractor in the
presence of:

Signature of Contractor.

Signed, Sealed and Delivered,
by the Commissioners in the
presence of:

SESSIONAL PAPER No. 123

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SESSIONAL PAPER No. 123

GENERAL SPECIFICATIONS

FOR THE CONSTRUCTION OF THE

NATIONAL TRANSCONTINENTAL RAILWAY

EASTERN DIVISION

General.

ALIGNMENT.

1. The centre of the roadbed shall conform in alignment to the centre stakes.

SUB-GRADE.

2. The grade line of the profile denotes sub-grade, and this term indicates the top of embankments or the bottom of excavations ready to receive the ballast.

CROSS SECTION.

3. The roadbed shall be formed to the section, slopes and dimensions shown upon the standard drawings, or to such modifications thereof as are required to meet special conditions, as may be from time to time directed.

WIDTH OF ROADBED.

4. When finished and properly settled the roadbed shall conform to the finishing stakes and shall be of the following dimensions at sub-grade, for single track, viz.:—

On embankments less than sixteen feet in height, the width shall be sixteen feet. On all other heights, the width shall be eighteen feet

Earth excavations, twenty-two feet at formation level.

Rock excavations, twenty feet wide at formation level.

SLOPES.

5. The slopes of embankments and excavations shall be of the following inclinations, as expressed in the ratio of the horizontal distance to the vertical rise:—

Embankments: Earth, one and one-half to one; rock, one to one.

Excavations: Earth, one and one-half to one; loose rock, one to one; solid rock, one quarter to one; unless otherwise ordered in writing by the Engineer.

Clearing and Grubbing.

CLEARING.

6. The whole, or as much of the right-of-way as the Engineer may direct, shall be entirely cleared of all trees, logs, brush and other perishable matter; all of which shall be burnt or otherwise disposed of as the Engineer may direct unless specially reserved to be made into ties, timber or cordwood. All merchantable timber, etc., cut on the right-of-way will belong to the Commissioners,

who may dispose of same as best seems fit. Unless directed in writing by the Engineer, trees and brush must not be thrown on adjacent lands, but must be disposed of on the right-of-way. Trees unavoidably falling outside right-of-way must be cut up, removed to right-of-way and disposed of.

All trees, stumps, undergrowth and brush within such clearing must be cut so that the tops of same shall not be over eighteen inches above surface of ground.

No allowance will be made for the cutting and removal of grain, grass, weeds or other annual plants on the right-of-way, the contract price of grading being assumed and understood to cover all such items.

DANGEROUS TREES.

7. All trees outside the limit of the right-of-way considered unsafe by the Engineer shall be cut down and disposed of as "other clearing," but no trees shall be cut down unless marked for cutting by the Engineer.

HOW PAID FOR.

8. Clearing shall be paid for by the acre where actually performed and dangerous trees cut outside the right-of-way at the specified rate per single tree.

CLOSE CUTTING.

9. On ground to be covered by embankments more than two feet and less than 5 feet high, all trees and stumps shall be cut off even with the surface of the ground and removed; the price paid for clearing covers close cutting.

GRUBBING.

10. In all excavations, including borrow pits, on all ground to be covered by embankments less than two feet high, and from all ditches, drains, new channels for water ways and other places when required, all stumps and large roots must be grubbed out and removed.

HOW PAID FOR.

11. Grubbing will be estimated and paid for by the acre, when actually performed in excavation less than four feet deep, under embankments less than two feet high, and on borrow pits, ditches drains, and new channels for water within the clearing limits, but no grubbing will be allowed on the slopes of any cutting where the depth at a distance of eleven feet on either side of the centre line exceeds four feet.

REMOVAL OF MOSS.

11A. Where the moss is over six inches deep on the ground to be covered by embankments less than two feet high, or any other places where, in the opinion of the Engineer, it is necessary to remove moss, it shall be removed and wasted. Such work shall only be done on the written instructions of the Engineers, and shall be paid for at a schedule rate per cubic yard measured in excavation.

Grading.

DEFINITION.

12. Under this head will be included excavations and embankments for the formation of the roadbed; all diversions of roads and streams; all borrow pits and ditches, foundation pits for trestles, culverts, buildings and structures, and all similar work connected with and incident to the construction of the roadbed.

LARGE BLASTS.

13. The use of powder or other explosives in large blasts is prohibited, unless on written authority of the Engineer. In the event of wasting of rock through any such blasting the Contractor shall, if the material is required in the vicinity for the making up of embankments, of which the Engineer shall be the judge, furnish at his own cost an equivalent amount of material for such embankment. One yard of rock in place being taken to equal 1½ yards of earth.

RESPONSIBILITY FOR DAMAGE.

14. All damage occasioned by blasting of rocks in the progress of the work, to any person, or any injury done by the Contractor, or those in his employ, to tracks, rolling stock, crops, fences, buildings or any property of the Commissioners, or of the adjoining land owners or occupants, shall be paid by the Contractor, or may be paid to the Commissioners and charged to the Contractor.

PUBLIC OR PRIVATE ROADS.

15. Whenever the line is intersected by public or private roads, the Contractor must keep open, at his own expense, convenient passing places. All dangerous places must be suitably protected by the customary warning signals, and fences when necessary.

REMOVAL OF ICE AND SNOW.

16. The Contractor shall, at his own cost, remove snow and ice from any portion of the work, whenever deemed necessary by the Engineer.

HAUL.

17. The limit of free haul will be 500 feet. For any haul exceeding 500 feet the Contractor shall be paid at one cent per cubic yard per 100 feet. The yardage overhauled will always be measured and estimated in excavation.

In all cases the work will be estimated so as to make the least cost; that is, if necessary, earth from excavations will be estimated as having been hauled regardless of the fact that the Contractor may have preferred to waste the material from the cuts and borrow the materials for the fills, but such waste and borrow must be subject to the approval of the Engineer in writing. This clause does not apply to material hauled over the rails owned by the Commissioners, or to any other train-hauled material.

Temporary Bridge or Haulway.

When the Engineer or the Commissioners so directs, material will be hauled over or beyond any bridge opening, and the Contractors shall construct such temporary bridge or haulway over or around such opening, and shall receive therefor actual cost of such bridge or haulway, including labor and material, plus (10%) per cent. This clause does not include the construction of roadways which are to be provided by the Contractor under section 244.

Excavations and Embankments.

FINISHING SLOPES.

18. Slopes of all excavations shall be cut true and straight, and all loose or projecting stones on the slopes must be removed.

EXCESS AND DEFICIENCIES OF MATERIAL.

19. Excess material in excavation shall be used to widen embankments within the limit of haul. No wasting will be permitted except on written authority of the Engineer. When the quantity of excavation is insufficient to make up embankments within the limit of haul, the deficiency shall be made up by widening the cuts as directed. No borrowing will be permitted until this manner of obtaining material has been exhausted.

RESERVATION OF MATERIAL AND PAYMENT THEREFOR.

20. Whenever gravel suitable for ballasting is found in a cutting, the Contractor shall, if required by the Engineer, cut a gullet through large enough to pass a train, the remainder of the material being reserved for top dressing or ballasting. The price stipulated in the schedule for common excavation shall cover the gulleting of gravel cuts, the remainder being treated as ballast. When stone suitable for special purposes is found in a cutting, it shall, if required by the Engineer, be reserved for such special purposes, and shall be piled near at hand so as to permit convenient loading on cars. The price paid for piling and reloading such reserve stone shall be the schedule price for same.

CATCH WATER DITCHES.

21. Catchwater ditches, as required, shall be made along the tops of excavations to prevent water flowing into the cut. The location and cross-section of such ditches shall be designated by the Engineer, and, if required, shall be excavated before the cuts are opened.

TILE DRAINS.

22. When required, four (4) inch tile drains shall be used; their location shall be as directed by the Engineer. The trenches for these tile drains must be excavated below frost line and to a true grade. The tile shall be laid with ends butted, and shall be covered with brush, grass, hay or straw, over which shall be laid gravel or other suitable material approved by the Engineer.

PROVISION FOR SETTLEMENT.

23. Whenever it is necessary to provide for the future settlement of the embankments, the height and width of the roadbed shall be increased, as directed.

PRECAUTIONS ON HILLSIDE GROUNDS.

24. When the embankment is to be placed on steep sidehill, the surface shall be deeply plowed, stepped or trenched. If built on wet or spongy ground likely to be affected by water, the Contractor shall remove all unsuitable material, and, if required, shall underdrain the same with tile, broken stone, or pole drains as directed.

CROSS-WAYING.

25. When required, in swamps or muskegs, cross-ways shall be put in. They shall be built of logs, each log as long as the full width of the embankment, if such timber is available, or of such length as shall be directed by the Engineer, and not less than six (6) inches in diameter. The depth of the log portion of the cross-way shall not be less than one foot. Said cross-way to be thatched with full limbs and brush to a depth of at least eighteen (18) inches. Such cross-way shall be paid for at the schedule price per acre. (If the cross-logging is two feet or more in depth, with the eighteen inches of brush on top, the price will be the schedule price for two or more acres, as the case may be.) No ditches shall be made on either side of cross-ways, except by direction of the Engineer.

EMBANKMENTS AGAINST MASONRY.

26. Embankments over culverts of masonry or concrete, or iron or vitrified pipe, shall be built of the best obtainable material. The portion against the sides of the culvert or pipe shall be thoroughly tamped. The portion over the arch or crown shall be deposited as loosely as possible, using all necessary care to avoid injury to the structure or pipe. The price paid for common excavation will cover the cost of doing such work.

SLOPES WHERE RIPRAP IS USED.

27. When directed, embankments or slopes which are to be riprapped, shall be flattened to a slope of 2 to 1.

Side Ditches, Borrow Pits, &c.

SIDE DITCHES ON PRAIRIE.

28. On prairie or level country, where embankments are much in excess of excavation the material to form the embankments will usually be obtained from parallel side ditches; such ditches must be made continuous, of uniform cross-section and constructed to a regular grade to facilitate drainage.

LOCATION OF BORROW PITS.

29. Borrow pits shall be located in such places as will be approved by the Engineer. They shall be regular in width, unless otherwise permitted by the Engineer, and, if required, shall be connected with ditches and drained to the nearest water course.

BERMS.

30. Berms of not less than the following widths must, where possible, be left

between the slope stakes and edges of borrow pits or ditches: For banks under 3 feet in height, berms 6 ft. wide; for banks 3 to 10 feet in height, berms 8 feet wide; for banks over 10 feet in height, berms 10 feet wide.

SLOPES OF BORROW PITS.

31. The side slopes of borrow pits on the right-of-way nearest the embankment, shall not be less than 1½ to 1, and those nearest to the outside of the right-of-way, not less than 1 to 1, always leaving sufficient berm to prevent the right-of-way fence from caving, but in no case less than four feet.

BORROWING AT STATIONS.

32. Borrowing from the side will not be allowed on either side of the centre line within eight hundred (800) feet of a station building, or a proposed station site, except where otherwise directed by the Engineer.

Classification.

CLASSIFICATION.

33. Grading will be commonly classified under the following heads: "Solid Rock Excavation"; "Loose Rock" and "Common Excavation."

SOLID ROCK EXCAVATION.

34. Solid rock excavation will include all rock found in ledges or masses of more than one cubic yard, which, in the judgment of the Engineer, may be best removed by blasting.

LOOSE ROCK.

35. All large stones and boulders measuring more than one cubic foot and less than one cubic yard, and all loose rock whether in situ or otherwise, that may be removed by hand, pick or bar, all cemented gravel, indurated clay and other materials, that cannot, in the judgment of the Engineer, be ploughed with a 10-inch grading plough, behind a team of six good horses, properly handled; and without the necessity of blasting, although blasting may be occasionally resorted to, shall be classified as "Loose Rock."

COMMON EXCAVATION.

36. Common excavation will include all earth, free gravel or other material of any character whatever not classified as solid or loose rock.

36A. No classification other than that of common excavation will be allowed on material from borrow pits, except by order in writing of the Engineer.

SLIDES.

37. Material in slips, slides and subsidences extending beyond slopes in cuttings will not be paid for unless, in the opinion of the Engineer, such occurrences were beyond the control of the Contractor and not preventable by use of due care and diligence.

CLASSIFICATION OF SLIDES.

38. The classification of material from slides shall be made by the Engineer, and will be in accordance with its condition at the time of the slide, regardless of prior conditions.

MEASUREMENTS—HOW MADE.

39. Measurements will usually be made in excavation, and will only be made in embankments when borrow pits of great irregularity only can be had, and where it is practicable to measure the material in excavation. In such cases the following percentage will be deducted from the bank measurements, viz: When the bank is made up from side casting and shovel work, 10%; wagon and wheel scraper work, 7%; slush scraper work, 5%.

Foundations.

DIMENSIONS.

40. Foundation pits shall be of such dimensions and excavated to such depths as are shown on the plans, and, if required, shall be excavated to such further dimensions and depths as may be necessary to insure stability of the structure to be erected, according to the instructions of the Engineer, but in no case less than is shown on plans, except by the order in writing of the Engineer.

MATERIAL WHERE DEPOSITED.

41. Material excavated from foundation pits shall be deposited in the embankment, unless otherwise directed. Excavation for foundation pits, including those excavated under water, but not requiring caissons, cofferdams or other special appliances, shall be paid for at the schedule price per cubic yard excavated, such excavation to be kept dry, and the schedule price shall include the necessary bailing or pumping. Solid rock in such foundations will be paid for at a rate of three times that given in schedule, Item 4.

COFFER DAMS AND PUMPING.

41A. Foundations requiring coffer dams and pumping—excavation shall be made in the dry, that is, ample pumping capacity shall be furnished by the Contractor to insure dry work, and the price per cubic yard of excavation shall include the cost of said pumping or bailing. Coffer dams or caissons shall be built only when necessary in the opinion of the Engineer and ordered in writing by him, and shall be paid for at the schedule rates per thousand feet net timber, and per pound for iron, bolts or spikes in place in the structure, which prices shall include all labor and material incidental thereto, including caulking.

BUILT TO STANDARD PLANS.

42. Foundations must be built strictly according to the general or special plans. Material used in their construction must, in every respect, conform with the specifications of the Commissioners.

TAMPING.

43. Great care must be used to thoroughly tamp and solidify the ground in

the bottom of foundation trenches for bridges, trestles, culverts, buildings or other structures. Where mud sills are used they must be settled to a permanent bearing by ramming with heavy rammers.

Specifications for Portland Cement.

BRAND.

44. No cement will be allowed to be used, except established brands of high-grade Portland cement, which have been successfully used under similar climatic conditions, and approved by the Engineer.

WEIGHT.

45. A sack of cement shall mean 87½ lbs., four sacks making a barrel of 350 lbs.

PACKAGE.

47. The package shall be plainly labelled with the name of the brand and of the manufacturer, and must be put up in good, sound, strong barrels, well lined with paper, or in case where bags can be advantageously used, in good stout cloth or canvas, tight sacks.

TESTS.

48. Tests must be made from time to time of the fineness, specific gravity, soundness, time of setting, tensile strength and chemical composition.

FINENESS.

49. Ninety-four per cent. of the cement must pass through a sieve made of No. 40 wire Stubbs gauge, having ten thousand (10,000) openings per square inch.

SPECIFIC GRAVITY.

50. The specific gravity of the cement, as determined from a sample, which has been carefully dried, shall be between 3.10 and 3.25.

SOUNDNESS.

51. To test the soundness of the cement at least two pats of neat cement mixed for five minutes with 20 per cent. of water by weight shall be made on glass, each pat about (3) three inches in diameter and one-half (½) inch thick at the centre, tapering thence to a thin edge. To be well trowelled to work out air bubbles and surplus moisture. The pats are to be kept under a wet cloth until finally set, when one is to be placed in fresh water for twenty-eight (28) days. The second pat will be placed on the rack in "Faija hot bath tank" over the vapour of water heated to 170° Fahr. and allowed to remain there from 3 to 4 hours, after which it will be placed in the hot water, temperature 170° Fahr. where it will remain for the balance of the twenty-four hours, and then be allowed to cool. In some cases it will be found desirable to raise the temperature of the water to the boiling point 212° Fahr. Neither sample should show distortion or cracks.

TIME OF SETTING.

52. The cement shall not acquire its initial set in less than 45 minutes and must have acquired its final set in ten hours.

The cement is considered to have acquired its initial set when the pat will bear, without being appreciably indented, a wire one-twelfth of an inch in diameter loaded with one-fourth of a pound. The final set has been acquired when the pat will bear, without being appreciably indented, a wire one twenty-fourth of an inch in diameter, loaded to weigh one pound.

TENSILE STRENGTH.

53. Briquettes made of neat cement, after being kept in air for twenty-four hours under a wet cloth, and the balance of the time in water, shall develop tensile strength per square inch, as follows:

After seven days, 450 pounds; after 28 days, 540 pounds. Briquettes made of one part cement and three parts clean sharp sand, by weight, shall develop tensile strength per square inch, as follows!

After seven days, 140 pounds; after 28 days, 220 pounds.

GOVERNING TEST.

54. The highest result from each set of five briquettes made at any one time, is to be considered the governing test. Any cement not showing an increase of strength in the 28 days over the seven days' test, will be rejected.

MAKING BRIQUETTES.

55. When making briquettes, neat cement will be mixed with 20 per cent. of water by weight, and sand and cement with 12½ per cent. of water, by weight. After being thoroughly mixed and worked for five minutes, the cement or mortar will be placed in the briquette mould in five equal layers and each layer rammed and compressed by 30 blows of a soft brass or copper rammer, three-quarters of an inch in diameter (or seven-tenths of an inch square, with rounded corners), weighing one pound. It is to be allowed to drop on the mixture from a height of about one half-inch. When the ramming is completed, the surplus cement shall be struck off and the final layer smoothed with a trowel held almost horizontal and drawn back with sufficient pressure to make its edge follow the surface of the mould. The briquettes will be kept in air under a wet cloth until set, when they will be placed in clean fresh water where they will remain until broken.

CHEMICAL ANALYSIS.

56. Manufacturers shall furnish a chemical analysis which will give the average composition of the cement supplied by them.

Specification for sand for Concrete and Masonry.

SAND.

57. Sand shall be clean, sharp, of variable size of grain, largely silica and must be free of loam, mica or other deleterious substances.

Specification for Stone for Concrete.

STONE.

58. Stone for concrete shall consist of hard, strong stone, granite, gneiss and allied rocks, limestone or other approved solid stone, *or suitable gravel approved by the Engineer.* Under no circumstances will shale, slate or similar friable rocks be used.

Specification for Stone Masonry.

FOR MASONRY.

59. Stone used for masonry shall consist of the strongest, hardest and best description of rock that can be found. Sound, hard limestone, granite, sandstone (when equal to Wallace stone) or other approved rock. Particular care will be exercised to exclude rock with "drys" shaky stratification or weak cleavage planes. All stones shall be laid upon their quarry beds, and shall be well selected sound stone. Particular care will be taken to exclude all rock shattered by blasting. No stone shall be used for masonry or concrete until it has been approved by the District Engineer.

Concrete Culverts and Concrete Pipes.

MUST BE BUILT TO STANDARD.

60. Concrete culverts must be built in strict accordance with the standard plans, and the concrete used in their construction must strictly conform to the standard specification.

Specifications for Concrete.

CONCRETE FOR FOUNDATIONS, ETC.

61. Concrete will be used whenever suitable stone for masonry is not to be had at reasonable cost; it will always be used in foundations, hearting of piers, backing of abutments, small culverts, and generally, where in the judgment of the Chief Engineer, a more satisfactory work can be had than by other methods. The proportions to be used in making concrete, will vary with the nature of the work as hereinafter described. Proportions are to be by measure, the barrel being the unit, being the volume of a 350 pound barrel.

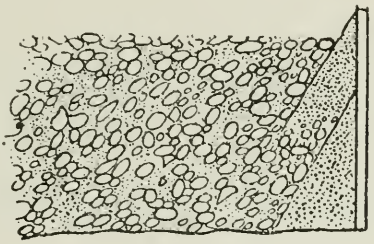
FACE CONCRETE.

62. Face concete will be used in all cases where the structure is exposed to the air or water, and when the body of the structure is made of concrete, it will consist of one part Portland cement, two parts sand, mixed together thoroughly while dry, when sufficient clean water will be added to bring the mortar to the consistency of rather stiff plasterer's mortar. (A ball of it taken in the hand will retain its form and the impress of the fingers.)

MACHINE MIXED CONCRETE.

63. Machine mixed concrete will be acceptable when a suitable batch mixer is used.

The face concrete will average 2½ inches in thickness and will be placed as nearly as possible simultaneously with the mass concrete of the body of the pier or structure. An excellent plan to secure a homogeneous mass, is to deposit the face material against the form in a triangular piece, some two inches higher than the regular bed in the body of the pier, then ramming the entire mass together; see sketch:



BODY CONCRETE FOR PIERS, ABUTMENTS AND LARGE MASSES.

64. The concrete will consist of one part Portland cement, three parts sand, six parts broken stone, or screened gravel, the same shall vary in size, the largest pieces shall pass a 2½ inch ring, the smaller may be of the size of a lima bean. In piers exposed to the action of running ice or logs, the cut-waters and up-stream corners must , if considered necessary, and ordered in writing by the Engineer, be faced with first-class stone masonry up to high water mark, which actual masonry shall be paid for at the schedule rate for first-class masonry.

HAND-MIXED.

The sand and cement shall be thoroughly mixed together, dry, when the stone will be added, the whole then to be well wet down and to be thoroughly mixed together with shovels.

MACHINE MIXED.

65. Machine mixed concrete shall be mixed in approved batch mixers and the whole of the material may be dumped into the mixers at once, providing the apportionment of material is properly made before being placed in the mixers. It is intended to secure wet concrete, the whole mass after being as above described, thoroughly mixed, will be deposited in place, in the dry. Only in exceptional cases will any concrete under any circumstances be permitted to be deposited through water, and only when the approval of the Chief Engineer has first been obtained, approving of the method to be used, and the proportions to be used. In all cases when large masses of concrete are being placed, subject to the approval of the Chief Engineer or Inspectors, large blocks of approved stone, spaced at least 12 inches apart in every direction and ten inches from the face—may be used—"plums in the pudding." In fixing the size of the stone to be so deposited, due regard will be had to the mass of the structure in general, the proper size will be found by looking at the drawing of the structure.

DEPTH OF LAYERS.

66. As a general rule concrete shall not be deposited in layers of a greater depth than 12 inches, the whole layer to be well and thoroughly rammed with

suitable rammers. Great care will be required to insure homogenity in the mass; in depositing on a layer that has set or partially set, it must be thoroughly cleaned and wet down. No layer or surface will be rammed smooth. It is desirable to leave the surface as uneven and rugged as is consistent with proper compacting of the layer.

CONCRETE FOR ARCH CULVERTS.

67. The concrete composing the arch ring will consist of one part cement, three parts sand, five parts broken stone, mixed and deposited in the manner heretofore described, except that the ring will be built up from both springing lines simultaneously. When considered necessary by the Engineer, steel beams, bars, rods or other approved reinforcement may be imbedded in the concrete, and, if necessary, secured by clamps, bolts, etc. Such steel beams, bars, rods, clamps, bolts, etc., to be furnished, placed and secured in the work by the Contractor for the price mentioned in schedule, Item 103, which price shall include the material and all labor incidental to securing it in place.

COPING COURSE AND BRIDGE SEATS.

68. The concrete for same shall consist of one part cement, two parts sand, four parts finely crushed, hard selected stone, or screened gravel, the coarse particles not to exceed three-quarters of an inch and to vary in size down to that of pea size. This coping course to be at least six inches thick. Particular care shall be exacted to insure the thorough mixing and depositing of this layer, which must be placed before the mass beneath it has set. The whole surface to be floated off even and perfectly level, with a wooden float, so as to insure a perfectly smooth, even surface.

TANK FOUNDATIONS.

69. Concrete shall consist of the same quality as that provided for piers and abutments, except that no displacers shall be used in the walls.

TURNTABLE FOUNDATIONS.

70. Concrete shall consist of the same quality as that provided for piers and abutments.

ORDINARY BUILDING FOUNDATIONS

71. Concrete shall consist of one part cement, four parts sand, eight parts broken stone or gravel. The broken stone or gravel shall vary in size from two and one-half inches in diameter to pea size. The methods of mixing and depositing to be as heretofore described.

FILLING.

72. Filling over and around culverts shall not, in any case, be done before the concrete is set. The minimum time allowed will be two weeks, but may be extended if required.

HOW PAID FOR.

73. In all concrete work the schedule price shall cover the cost of all tools,

plant, labor and material incidental to the construction thereof, including forms and centres, where necessary, but the preparation of foundations will be paid for at the specified rate per cubic yard.

Stone Masonry.

POINTING.

74. Joints below the ground line shall be thoroughly pointed up with a trowel as the work progresses, but need not be raked out.

Joints above the ground line shall be carefully raked to a depth of one (1) inch and pointed up with fresh mortar consisting of one part Portland cement and two parts of sand.

If the structure is subject to the action of running water, or is unusually exposed, the pointing mortar shall consist of one (1) part of Portland cement to one (1) part of sand; and the joints shall be raked out to a depth of one and one-half (1½) inches.

Before filling the joints be careful that they are well cleaned by brushing out all loose matter, and thoroughly wet. Apply the mortar with the trowel and calk the joints so that they will be completely filled.

If pointing is done in very hot weather great care should be taken by wetting the stones, not to allow the mortar to dry too rapidly. No pointing shall be done in freezing weather.

LAYING.

75. All stone, whether face, coping or backing, shall be laid in full flush beds of mortar mixed fresh for the work in hand. In no case shall stone be allowed to touch stone; a good bed of mortar must intervene. Wedging up of stones with spalls or chips will not be allowed. No mortar shall be spread on any stone already laid until the latter has been swept off cleanly and then thoroughly wet. All stones must be free from scales. THOROUGHLY CLEANED by washing or otherwise, from sand and dirt, and thoroughly wet before laying. All rear joints shall be thoroughly filled with mortar and struck smooth as the wall is built up.

QUALITY OF STONE.

76. Bridge seats, coping, arch sheeting, ring stones and ashlar or face stones, shall be sound and durable, of neat quality, free from any defects, and acceptable to the Engineer.

The backing shall consist of sound, durable, well shaped stones, free from defects that will impair their durability or strength, and shall consist of large stones that in general require handling with a derrick.

COPING AND BRIDGE SEATS.

77. The bridge seat course shall include the cut stone course upon which the superstructure rests. Each stone of the bridge seats shall be set to the exact proper height to receive the bridge, shall not be less than (20) twenty inches in thickness, two feet and six inches (2′6″) in length, and of sufficient width to extend twelve (12) inches into the back or parapet wall. Piers of seven (7) feet, or less, under bridge seat, shall have bridge seats extend across top of pier in one piece. They shall be finely bush-hammered on top to true planes, free from hollows or "winds," and shall be laid to joints not exceeding one-half (½) inch in thickness. They shall be laid in full beds of mortar, as grouting will not be allowed.

Copings shall include the top course of retaining walls. They shall not be less than twelve (12) inches in thickness, three (3) feet long, and of sufficient width to extend across the entire width of the wall. Top surfaces shall be bush-hammered, with edges neatly pitched to straight lines. Joints of copings shall not exceed one-half (½) inch.

ARCH SHEETING AND RING STONES.

78. Sheeting for arch-culverts shall consist of large sized stone, with radial beds and joints extending through the whole thickness of the arch, and hammer or point-dressed, so as to admit of one-half (½) inch joints. The sheeting shall be laid in continuous courses, care being taken to break joints not less than nine (9) inches, so that the arch will be thoroughly bonded. No stone shall be less than eight (8) inches wide on the intrados. Centres shall not be removed until so ordered by the Engineer.

Ring stones shall be dressed to the size and shape shown on the plans, or as directed by the Engineer, shall be laid with one-quarter inch joints, and shall bond thoroughly with the sheeting. The joints must be on truly radial lines. Faces shall be left rough and with one and one-half (1½) inch chiseled draft line on the curved margin.

The top of the third-class rubble masonry spandrel backing and arch shall have a coat at least one (1) inch thick of Portland cement mortar, one part of cement to four parts of sand (1:4) on top of which apply a coating of about one-quarter (¼) inch thick of straight run coal tar pitch. In case it is not practicable to secure the coal tar, then a richer mortar of one part cement to two parts sand (1:2) shall be used, the cost of which shall be included in the price for arch sheeting and ring stones.

FIRST-CLASS MASONRY.

79. General Description.—First-class masonry shall be used where directed by the Engineer for abutments, piers and retaining walls, and shall consist of rock-faced ashlar work, with rough backing. Edges shall be pitched to straight lines, beds shall be parallel and joints rectangular.

The face stones shall be arranged on their natural beds as headers and stretchers in regular continouus courses, not less than sixteen (16) inches nor more than thirty-six (36) inches in thickness, and the thickness of any course shall not exceed that of the course below it.

SIZE OF STONE.

80. Stretchers must not be less than two and one-half (2½) feet in length, and not less than one and one-half (1½) feet in width; nor in any case less in width than one and one-quarter (1¼) times their depth. Headers must not be less than four feet long where the wall is of sufficient thickness, and at least two (2) feet longer than the width of the adjacent stretchers not less than one and one-half (1½) feet in width, nor less in width than they are in depth of course. In walls of five feet or less in thickness, the headers shall extend entirely through the same.

Wing steps shall be of the full thickness of the course.

CUTTING.

81. Every stone must be laid on its natural bed. All face stones must have beds well dressed, parallel and true to proper line and made to extend the full length and width of the stone. The beds and sides of the face stones must be

cut before being placed in the work, so as to form joints not exceeding one-half (½) inch in width. No hammering on stone will be allowed after it is set; but if any inequalities occur, they must be pointed off. The vertical joints must not be less than ten (10) inches in from the face and as much more as the stone will admit. All corners and batter lines shall be run with a neat chisel draft one and one-half inches (1½) in width on each corner. The projections of the quarry face beyond the draft line shall not exceed four inches (4). The tops of wing steps shall be bush-hammered to a uniform surface.

BOND.

82. The masonry shall consist of headers and stretchers alternately arranged so as to thoroughly bond together the face stone and the backing; and every header shall be immediately over a stretcher of the underlying stone. The stones of each course of face stones shall be so aranged so as to form a bond of at least one foot (1) with the stone of the underlying course. Particular care must be taken that the stones in the course below the coping course, coming directly under the bridge seats, are large and well bedded.

BACKING.

83. The backing shall consist of large-sized, well-shaped stones, laid so as to break joints and thoroughly bond the work in all directions, and leave no spaces between them more than six inches in width, as nearly as possible, which space shall be filled with concrete. The courses may correspond with the face stones, but two (2) courses shall fill up one (1) of the face, providing no stone less than six (6) inches thick be used. The broadest shall be laid undermost, and must have a good bearing on the stone below. Two-thirds (⅔) of the upper bed shall be of the full thickness of the course.

General Description.

SECOND CLASS.

84. Second-class masonry shall consist of rock-faced ashlar work. It shall be used for such small arch-culverts, cattle passes, abutments, piers and retaining walls as the Engineer may direct, and shall include the portion of the structure above the concrete footing courses.

FACE STONES.

85. Face stones shall be of a superior quality, free from defects such as clay seams, dry-seams, weather cracks, etc., shall be rock-faced, with edges pitched to straight lines, with no projections exceeding four (4) inches; and shall have parallel beds and rectangular joints. The beds and end joints for six inches (6) back from the face line shall be point or hammer dressed to three-quarter (¾) inch joints. No face stone shall be less than eight (8) inches in thickness, nor be in breadth less than twelve (12) inches, nor less in length than its breadth. The wing steps shall be of the full thickness of the course and the steps thereof shall be bush-hammered to a smooth surface. All corners or batter lines are to be run with a neat chisel draft of one and one-half (1½) inches on each corner.

COURSES.

86. The stones need not be arranged in regular courses, but shall be laid level on their natural beds, arranged as headers and stretchers, with joints well broken.

BOND.

87. At least one-quarter (¼) of the face stones shall be headers not less than three feet (3) six (6) inches long, except where the thickness of the wall is less and extending through the wall, where the same is four feet (4) thick or less, and at least two (2) feet longer than the width of the adjacent stretcher and so distributed so as to make the best bond. The stone of each course of face stone shall be so arranged so as to form a bond of at least one (1) foot with the stone of the underlying course, except in the case of "fillers" in broken range work.

BACKING.

88. The backing shall be well-shaped, sound, durable stone, not less than six (6) inches thick, at least one-half of which (½) shall measure three (3) cubic feet, to be laid close in full mortar beds and joints, well bonded with face stones, and with joints well broken. All spaces between backing and face stone are to be filled with concrete.

General Description.

THIRD CLASS.

89. Rubble masonry shall be used for such small culverts, depot foundations and piers, pipe ends, spandrel backing for arches, and other structures as the Engineer may direct.

GENERAL CONDITIONS.

90. All stones shall be sound and durable, with the face stones free from clay seams, dry seams, weather cracks, etc. They shall be laid on their natural beds, and shall be sufficiently large to make a good, well bonded, strong job; shall be laid in the most substantial manner, and with as much neatness as this description of work will permit.

DIMENSIONS OF STONE.

91. No stone shall be used in the face that has more height than breadth of bed. No spalls shall be permitted in the bed joints.

BOND.

92. The whole wall shall be bound together with headers occupying one-fifth (1-5) of the area of the face of the wall, front and rear, extending through walls three (3) feet or less in thickness.

COURSING.

93. The walls shall be levelled up and coursed longitudinally at least every four (4) feet in height.

STONE TO BE ROUGHLY SQUARED.

94. Stone shall be roughly squared on joints, beds and faces laid so as to break joints, and in full mortar beds.

VERTICAL SPACES.

95. All inside vertical spaces shall be flushed with mortar and then packed full of spalls. No liquid grouting shall be allowed.

All rear joints shall be thoroughly filled and struck smooth as the wall is built up.

ANGLES.

96. Selected stone shall be used at all angles, and shall be neatly pitched to true lines, and laid on hammer-dressed beds.

BOX CULVERTS.

97. All stone box culverts shall have a water way at least 2½ x 3 feet. The side walls shall not be less than two (2) feet thick, and shall be built of sound, durable stones, not less than six (6) inches thick, laid in cement mortar (usually one part Portland cement to three parts sand.) The walls must be laid in true horizontal courses, but in case the thickness of the course is greater than twelve (12) inches, occasionally two (2) stones may be used to make up the thickness. The walls must be laid so as to be throughly bonded, and at least one-fourth (¼) of the area of each course must be headers going entirely through the wall. The top course must have one-half (½) its area of through stones, and the remainder of this course must consist of stone going at least one-half of the way across the wall from the inside face. The face stones of each course must be dressed to a straight edge, and pitched off a true line. All of the coping stones of head walls must be troughs, and must have the upper surfaces hammer-dressed to a straight edge, and the face pitched off to a true line with margin draft.

COVER STONES.

Cover stones shall have a thickness of at least (12) twelve inches for opening of three feet, and at least fourteen inches for opening of four feet; and must be carefully selected, and must be of such length as to have a bearing of at least one (1) foot on either wall.

The beds and vertical joints of the face stones for a distance of six inches (6) from the face of the wall, shall be so dressed as to require a mortar joint not thicker than three-fourths of an inch (¾). Joints between the covering stones must not be wider than three-fourths (¾) of an inch, and the bearing surface of cover stones upon side walls must be so dressed as to require not more than one (1) inch mortar joint.

PAVING STONES.

The paving shall consist of flat stones, set on edge, at right angles with the line of the culvert, not less than twelve (12) inches deep, and shall be laid in cement mortar. This class of paving will be paid for under the schedule rates per cubic yard for third-class masonry.

TURNTABLE MASONRY.

98. Shall consist of second-class masonry as hereinbefore described.

FOUNDATION AND WALLS FOR WATER TANK WELLS.

99. Shall consist of third-class masonry as hereinbefore described.

100. The circular walls to be parallel and true to line and to consist of third-class masonry as hereinbefore described.

Cast Iron Culvert Pipe.

QUALITY CAST IRON CULVERTS.

101. They shall be cast vertically in dry sand moulds and dried cores and shall be coated with Dr. Smith's solution, or some other solution approved by the Engineer, while hot, and shall be of the highest quality of metal in use for pipe founding purposes.

DIMENSIONS.

102. The size, length, thickness and weight shall be as in the following table:—

Diameter	Length	Thickness	Weight
18 inches	12	$\frac{3}{4}$	1800
24 "	12	$\frac{3}{4}$	2400
30 "	12	$\frac{3}{4}$	2900
36 "	12	$\frac{7}{8}$	4100
36 "	6	$\frac{7}{8}$	2100
42 "	8	$\frac{7}{8}$	3200
48 "	6	1	3000
60 "	6	$1\frac{1}{4}$	4850

Salt Glazed Double Strength Vitrified Pipe.

SALT GLAZED PIPE CULVERTS—15 and 18 inches.

102A. Shall be of well burnt vitrified clay, with a smooth, salt glazed surface, true to diameter, straight, in three feet (3) lengths, with bell and spigot. The thickness of shells for 15 inch to be one and one-quarter inches, and for 18 inch one and one-half inches.

SUB-SOIL DRAINS.

103. Agricultural tile four inches (4) in diameter, shall be straight, well burnt, true in diameter, and free from cracks or cheeks.

REINFORCED CEMENT PIPE CULVERTS.

104. The concrete shall consist of one part cement, one and one-half parts

sand, three parts one and one-half inch diameter broken stone or screened gravel of same dimensions. The reinforcing metal to be in accordance with the best modern practice, and both the mixing of the concrete, the method of reinforcing, the size of the pipe, length and all other matters in connection therewith, to be approved by the Engineer.

MASONRY ENDS.

105. All to have concrete or masonry ends for protection walls.

FOUNDATIONS FOR PIPE.

106. Great care must be taken to get a firm and uniform bearing for pipe culverts, and material for bedding the pipe must be free from stone.

JOINTS.

107. The joints of all pipe, both iron and vitrified, shall be well and thoroughly packed, as shown on standard plans. Cast iron pipe of 30 inches diameter and over, shall be stayed and crowned by wedging in strutts as shown on standard plans. The strutts shall not be removed until sufficient settlement has taken place in the bank. In general, this will not be less than one year from the completion of the filling.

FOUNDATIONS FOR VITRIFIED PIPE.

108. Where vitrified pipe is laid in hard ground the bottom of the bench in which the pipe is to lay should be rounded to fit the pipe as nearly as possible, so that the pipe may rest easily and solidly in its bed. If the ground is soft, a foundation satisfactory to the Engineer shall be made.

Riprapping.

RIPRAP STONE TO BE ANGULAR.

109. When required by the special or general plans as ordered by the Engineer as protection against the action of water, hand laid or "Pierre Perdu Random" of angular stones shall be laid or placed on embankments, or about foundations, or at the ends of culverts or masonry or other places, as directed. Boulders shall not be used unless ordered in writing by the Engineer.

SIZE.

The largest procurable stones shall be used, and they shall in no case measure less than one cubic foot. The largest stone shall be placed at the bottom and where the current is the greatest. They shall be laid as closely together as possible so as to avoid large openings.

TRENCHES.

110. When required, a trench shall be excavated at the base of the slope to such a depth as will insure a solid foundation, and all sand or ice or other perishable matter will be removed.

GENERAL DIMENSIONS.

111. In general, the depth of the riprapping at the base shall measure three feet at right angles to the slope and shall gradually taper off to a depth of two feet; but shall, if ordered by the Engineer, be built of any required thickness.

HOW PAID FOR.

112. Riprapping shall be paid for at the specified rate per cubic yard in place, for each class.

Paving.

WHERE USED.

113. When required by the general or special plans, as ordered by the Engineer, the ends of masonry or concrete culverts, vitrified or iron pipe, the bottom of wooden culverts, and other places, shall be protected by paving.

DESCRIPTION.

114. Paving will be made of flat stones set upon their edges, the longest dimensions at right angles to the waterway in such manner as to leave the least possible space between them, and of such size as to reach through the entire depth of the pavement.

UNDERMINING.

115. Great care must be taken at the ends of any piece of paving to make it secure, so it cannot be undermined or cut by water flowing underneath it. The lower end must receive special care to prevent this undermining. A concrete apron shall be provided when required by the Engineer.

HOW PAID FOR.

116. Paving will be paid for at the specified rate per cubic yard in place, as per Item 17 in the schedule.

Tunnels.

HOW BUILT.

117. All tunnels must be built in strict accordance with the general or special plans.

LINING.

118. Tunnels which do not require lining shall be excavated to the section and dimensions shown on the standard plans for "Tunnels, Rock Section."

TIMBER, CONCRETE OR MASONRY LINING.

119. Tunnels which require lining with timber, masonry or concrete, shall be excavated to the section and dimensions as shown on the standard plans for "Tunnels, Timbered Section."

DANGEROUS ROCK.

120. The Contractor must take out at his own expense all loose or shattered rock which is loose or likely to become so.

ROCK TUNNELS.

121. Rock tunnels shall be excavated to one foot below profile grade and refilled to such grade with rock spalls or other approved material.

EXPLOSIVES.

122. The contractor must limit the use of explosives to avoid unnecessarily shattering the roof or sides of the tunnel, or damaging the lining, and the Engineer shall have the right to restrict the use of such explosives.

SITUATION OF LINING.

123. Where lining is required, such lining must conform to the standard or special plans.

LINING

124. Lining will be made with timber, concrete or masonry, as ordered.

TIMBER LINING.

125. Where timber is used, it shall be red or yellow fir, cedar, oak, tamarac, or white or yellow pine, as may be designated, and must be of the best description of the kind required. It must be hewed or sawed square and to proper dimensions. It must be free from all loose, large or unsound knots, sap, sun cracks, shakes, wanes or other imperfections or defects what would lessen its durability.

LAGGING.

126. The lagging shall be in pieces 4 inches thick and 6 inches wide.

HOW PAID FOR.

127. Timber used for lining shall be paid for at the specified rate per thousand feet B.M. of timber left in completed structure.

TIMBER PRICE INCLUDES IRON REQUIRED.

The price paid per thousand feet will include the cost of the necessary iron and the total cost of all labor incidental to putting the timber and iron in place.

USE OF CONCRETE OR MASONRY.

128. Where concrete or masonry is used for lining, such concrete or masonry must be built in strict accordance with the section and dimensions as shown on the standard plans or special plans, and must conform strictly with the specifications for concrete or masonry.

PROTECTION OF LINING FROM BLASTING.

129. The Contractor will be required, at his own expense, to protect the lining when in place from the effects of blasting, by covering with slabs or otherwise as most conveninent. He will also be required to replace, at his own expense, any lining shattered or crushed in any stage of the work by blasting or other operations of his own.

CAVITIES BEHIND THE LINING.

130. In lined tunnels the Contractor must, to his own expense, fill in any cavities behind the lining, resulting from any cause whatever, so that the roof and sides will in all cases have a firm bearing on the lagging or lining. In timbered tunnels this packing shall consist of timber or stones. When the lining is constructed of concrete or masonry the packing shall consist of stones closely packed together.

PORTALS.

131. Material in portals will be paid for at the same rate as lining in the tunnel.

NICHES OR RECESSES.

132. Niches or recesses for the protection or convenience of railway employees shall be constructed when ordered.

DRAINAGE.

133. Drainage shall be carefully executed as shown upon the standard or special plans or as directed, and all drains or sources of water shall be treated as directed, the cost of which shall be included in the price per lineal foot of excavation.

SHAFTS.

134. The number, location and dimensions of all shafts shall be shown as on the plans, or as directed, and the specified price per cubic yard for shaft excavation shall cover all material contained between the surfaces of the ground and the cross section of the tunnel, as shown on the standard or special plans and the cost of all labor and material incidental to their construction.

WELLS OR SUMPS.

135. All wells or sumps necessary for the completed tunnel shall be made as directed and shall be paid for at the same rate per cubic yard as shaft excavation.

TUNNEL EXCAVATION.

136. Tunnel excavation shall be paid for at the specified rate per lineal foot under cover for "Tunnels, Rock Section" and "Tunnels, Timber Section." The specified rate per lineal foot shall cover the whole cost of labor and material incidental to the excavation of the tunnel and the haul and deposit of the material in the embankments at the ends of the tunnel, as directed.

NET SECTION.

137. No allowance shall be made for material taken out beyond the theoretical section shown on the standard or special plans.

DIMENSIONS.

138. The standard dimensions of the tunnel may be varied if found necessary or desired. If the area of the section be not thereby increased no extra allowance shall be made to the Contractor on account of such change. If the area of the section be thereby increased or diminished, the specified rate per lineal foot shall be increased or diminished in proportion.

Timber Structures.

TO BE BUILT TO PLANS.

139. All structures must be built in strict accordance with the general or special plans.

QUALITY.

140. All timber either sawed or hewed must be of the best description of the kind required. As directed by the Engineer, it must be sawn or hewn square and to proper dimensions. It must be free from all loose, large or unsound knots sap, sun cracks, shakes, wanes or other imperfections or defects which would impair its strength or durability.

QUALITY AND DESCRIPTION.

141. The quality and description of timber used for each portion of the structure must be as specified. Stringers must be of long leaf yellow pine, douglas fir, white pine, or other timber approved by the Engineer.

CLEARING GROUND.

142. Before commencing work on any wooden structure, the ground must be entirely cleared of logs, brush and trees for the whole of the width of the right-of-way, and during the progress of the work all pile or timber ends, chips and brush, shall be cleared from around the structure and burnt, or otherwise disposed of as the Engineer may direct.

FRAMING.

143. No shimming will be permitted. Great care must be taken in framing all timber structures, to insure perfect fit at all joints. At the completion of the work they must be left in perfect line and surface.

ERECTION OF BRIDGES AHEAD OF TRACK.

144. Bridges must be erected ahead of the track in all cases, but the maximum distance beyond the end of track to which the Contractor shall be required to haul timber or other material without extra payment, shall not exceed four miles.

Piling for Foundations.

TIMBER.

145. Piles may be of oak, rock elm, douglas fir, tamarac, cedar, hemlock, jack pine and spruce, to be straight, or reasonably straight-grained, sound, live timber, free from all bad knots, wind shakes or other defects. All diameters must be measured inside the bark, which shall be removed before delivery.

DIMENSIONS.

146. Standard dimensions for piling are as follows:—Minimum lengths in feet 15, 20, 25, 30, 35, 40, 45, 50, over 50; Diameter in inches at small end, 10, 9, 9, 9, 9, 9, 8, 8, over 7½. Butt diameter to be not less than 12 inches or more than 20 inches at five feet from butt.

LENGTHS.

147. Piles will only be accepted and paid for in lengths which are multiples of five.

HOW DRIVEN.

148. Unless otherwise directed, all piles shall be sharpened and driven small end down, capped with a suitable iron ring, as the Engineer may direct, to prevent spreading or brooming while driving, and, if required, shall be shod with an iron shoe of approved design.

DRIVING.

149. Piles shall be driven until the fall of a hammer weighing 2,000 pounds, with a clear fall of 25 feet or an equivalent blow, causes a penetration not to exceed 10 inches under the last blow, or to such further limit as directed.

BROKEN PILES.

150. Should any piling be broken in the driving, another sound pile shall be driven alongside to replace it.

BATTER PILES.

151. All piles must be driven vertically unless otherwise shown on the plan. Batter piles will be driven at the batter shown on the plan.

EXTRA LENGTHS—HOW ATTAINED.

152. When necessary to drive great depth, and piles of adequate length cannot be obtained, one shall be spliced on top of another. The first pile having been driven as far as practicable, it shall be cut off square to receive the following pile, which must also be squared and set on top of the one already driven, using a dowell pin 1 inch in diameter in the centre, extending 8 inches at least into each pile. The piles shall then be flatted on four sides and fastened together by spiking on pieces of scantling.

HOW PAID FOR.

153. Piling will be paid for under the headings of "Piles Delivered" and "Pile Driving."

ENGINEER'S BILL OF LENGTHS ONLY WILL BE PAID FOR.

"Piles delivered" will include piling furnished by the Contractor at bridge site, as ordered by the Engineer, and will be paid for by the lineal foot, but any lengths in excess of those ordered by the Engineer will not be paid for.

"Pile Driving" will be paid for at the specified rate per net lineal foot in the finished structure, and will include all work of any kind in connection therewith, but will not include the material in the piles themselves.

RINGS AND SHOES—HOW PAID FOR.

154. Rings shall not be paid for, but shoes will be paid for at the specified rate per shoe.

Sheet Piling.

POINTS.

155. Sheet piles shall be cut at the end, so as to form a point at one side and not in the middle, and when driven this point shall be kept next to the pile previously driven to ensure contact, and when required by the Engineer the Wakefield type of piling shall be used.

BROKEN JOINTS.

156. Where there are two or more rows of sheet piles, they shall be driven with broken joints.

HOW PAID FOR.

157. Sheet piling will be paid for at the specified price per thousand feet B. M. left in the work.

Frame Trestles.

CEDAR FOR MUD SILLS.

158. Mud sills not less than ten inches thick, must, in all cases, be made of sound, live cedar, unless permitted in writing by the Engineer. The use of timber other than cedar for this purpose is objectionable, and will not be permitted only in case of necessity.

SILLS AND POSTS NOT TO BE BURIED.

159. Care must be taken not to bury with earth, any portion of the sills or posts. All pits for trestle foundations must have free drainage.

ADJUSTMENTS.

160. All adjustments in height of structures, due to settlement or other causes, must be rectified by jacking up from the bottom to the proper elevation.

TIMBER CULVERTS.

161. Timber culverts will be made of sound, hewed or sawn timber, and in accordance with standard plans. They shall be of such dimensions as shall allow the insertion of cast iron or other approved pipe and in accordance with the direction of the Engineer. They shall be estimated and paid for at the specified price per thousand feet B.M.

PAVING.

162. The bottom of timber culverts will be paved to the top of the mud sills with angular rock, when it can be obtained from the adjacent cuttings, otherwise with large boulders if the Engineer so elects, and will be paid for as per Item 17 of schedule.

Crib-Work.

TIMBER CRIBS.

163. Timber cribs used in support of trusses shall be built of timber in quality similar to that used in trestles and according to plans furnished by the Engineer and to his approval, both as to workmanship and material.

HOW PAID FOR.

They will be estimated and paid for by the thousand feet B.M., according to bills furnished by the Engineer. Iron contained in them will be paid for by the pound They will be filled in with angular stones of a size and character satisfactory to the Engineer, which shall be placed in the cribs without damage to any portion of the structure, and as the Engineer may direct.

ROUND TIMBER CRIBS FOR PROTECTION WORK.

164. Round timber cribs shall be built in accordance with general plans furnished by the Engineer, under his direction and to his entire satisfaction, both as to size of material, quality and workmanship.

QUALITY.

165. Timber must be good, sound, live red or yellow fir, cedar, pine or tamarac, or other wood approved by the Engineer, free from wind shakes, loose or rotten knots, and all other kinds of decay.

HOW PAID FOR.

166. Timber in cribs will be paid for by the lineal foot, all pieces being estimated only as to length, the varying thickness not being taken into consideration, but only the best available timber must be used as directed by the Engineer.

HOW FILLED.

167. Timber crib-work required for sustaining or protecting embankments, or for deflecting or changing the channels of stream will, preferably, be filled with angular rock obtained from excavations adjacent, and care must be taken to work the largest stones to the face. If, however, no suitable material to fill them is found in the excavation, it will be obtained by borrowing.

TRENCHES.

168. When required, a trench shall be excavated at the base of the slope to such a depth as will insure a solid foundation, and all sand or ice or other perishable matter shall be removed.

CRIBS TO BE CLOSE-FITTING.

169. When cribs are built for protection against the action of the waves or the impinging of running streams, the Engineer may require the logs to be flattened on two sides, or he may resort to any other method of making the cribs tight and close-fitting, that in his judgment may be necessary.

QUALITY OF MATERIALS.

170. The materials for all timber structures must be such as are approved by the Engineer, and the workmanship must be of the best kind to secure the full bearing and strength of the materials, and must in all respects be satisfactory to the Engineer.

Specifications for Ties.

FIRST CLASS TIES.

171. Ties shall be made of the best description of timber tributary to the line of railway.

QUALITY AND DESCRIPTION OF TIMBER.

172. All timber shall be cut from live, sound trees, free from large or loose knots, wind shakes or other defects which would impair its durability or strength. The following kinds of timber will be accepted in the order named: oak, cedar, tamarac, douglas fir, pine, hemlock (black spruce only to be used under the approval of the District Engineer.)

SIZE.

173. They shall be hewn or sawn with two parallel straight faces, reasonably straight, exactly eight feet long, full seven inches thick and seven inches face. Sawn square at the ends.

SECOND-CLASS TIES.

174. They shall be of the same quality and description of timber, but the size may be as follows: Length, exactly eight feet; thickness, full six inches; face, six inches. These shall not be used in main tracks.

Track Laying.

TRACK LAYING.

175. Track laying will include all work of unloading, loading, piling and handling material; laying the main track, spurs, turnouts, wyes, and other permanent tracks, frogs, switches, rail braces, tie plates, crossings, etc.; laying and spiking plank of road crossings, setting all track markers or signs, and such necessary

light surfacing with material from the sides, cutting down or filling up the inequalities of the roadbed as will allow of the passage of trains, without damage to rail or rolling stock, until the proper ballasting is performed.

SECOND-CLASS TIES.

176. Second-class ties may be used in sidings and spurs if sound and otherwise fit for use.

BARK.

177. Bark must be removed from all ties before they are placed in the track.

NUMBER OF TIES.

178. Sixteen (16) ties will be used to each 30 foot rail length or eighteen (18) ties to a 33 foot rail on tangents and two additional ties on curves, as directed by the Engineer.

HOW SPACED.

179. Ties of full size and uniform standard should be used for joint and shoulder ties. Shoulder ties shoould be placed not more than 10 inches distant from joint ties; the remaining ties must be spaced evenly between shoulder ties. All ties must be laid at right angles to the track.

LINING.

180. The ends of cross ties in single track must be lined true on the south and east side of the track.

ADZING.

181. Cross ties must never be notched, but if necessary must be adzed, in order to maintain a true uniform bearing, for the tie plate or the base of the rail.

TIE PICKS.

182. In moving ties with a pick, the point should be stuck into the side of the tie and not into the face.

SWITCH TIES.

183. Swan ties must, except under written authority of the Engineer, be used for all permanent switch turnouts, cross-overs and railway crossings and acute angles; and placed, spaced and lined in exact conformance with the standard plans.

BOLTING AND DRILLING.

184. All joints must be full bolted and rails drilled, when necessary. Nuts must be tightened as required until entirely satisfactory to the Engineer.

COMPROMISE SPLICES.

185. When rails of different weights or sections join each other it must be done with compromise splice bars made to fit the different rail sections and bolts holes.

SPIKING AND SLOTS.

186. A spike must be driven in each slot, inside and outside of rails and angle bars, except on bridges or trestles where spiking in slots, or against the ends of angle bars, or in any way anchoring the rails to the bridge, is prohibited.

NUTS.

187. The nuts of all track bolts shall be placed on the outside of the rails.

BROKEN JOINTS.

188. Track shall be laid with broken joints on the main line and important branches where the new steel is used; or minor branch lines where re-laying steel is used.

VARIATION OF JOINTS.

189. When track is laid with broken joints, they must not vary more than eighteen (18) inches from the middle of the opposite rail.

SHORT RAILS.

190. Short rail shall be used in inside line of rails on curves of large central angle, in order to maintain position of joints near centre of outer rail.

CROSS SPIKING.

191. Tracks must be fully spiked, using the system commonly known as "Cross Spiking," with the inside and outside spikes driven on opposite sides of the centre of the tie. They must be set as far apart as the face and character of the tie will permit.

VERTICAL SPIKING.

192. Spikes must be set one-half of their own width from edge of rail and driven vertically to full bearing on base of rail, and they must be kept in this position. Driving sloping spikes or giving them a final lateral blow to close the spikes against the rail, is forbidden.

USE OF GAUGE.

193. The track gauge must always be used when spiking.

194. Boat spikes 8 inches x $\frac{3}{8}$ inch shall be used for spiking frog and switch blocking to ties.

ELEVATION.

195. The elevation of the outer rail will be ordered and great care must be used to keep the elevation uniform. The grade line must be maintained along the inner rail and the elevation obtained by raising the outes rail. The full elevation of the outer rail must be continued beyond the end of the central curve, but shall decrease uniformly, as the Engineer directs, generally one-half inch in 30 feet, along the easement curve to the tangent point, where both rails should be level.

ELEVATION ON NON-SPIRAL CURVES.

196. For curves not having ends eased the full elevation should be extended to the end of the curve where it should run out gradually on a tangent to a level with the inner rail, by reducing the elevation of the outer rail one-half inch to 30 feet length, except in cases where tangents are too short to permit.

LEVEL RAILS

197. On all tangents the tops of the rails must be level with each other, except the approaches of the curves that are not eased.

TRACK LEVEL.

198. The track level must be used when surfacing either curves or tangents.

GAUGE.

199. Gauge of track must be exactly and uniformly as prescribed.

STANDARD GAUGE.

200. The standard gauge is 4 feet 8½ inches. Extra width of gauge on account of curvature must be given as follows:

On curves of 3 and 4 deg..... ⅛ inch
" 5 and 6 deg..... ¼ inch

EXTRA WIDTH OF GAUGE.

201. The extra width of gauge should be given by the inside rail and uniformly decreased on the easement curve, from point of central curve to point of tangent.

HANDLING RAILS.

202. Rails must be handled carefully before being put in the track, and must be uniformly supported after being placed there. Skids will invariably be used whenever necessary to unload them into piles. In all cases the greatest care must be used to avoid injury to rails by dropping them on hard substances or uneven surfaces.

DRILLING.

203. When necessary to make holes in rails for bolts they must be drilled with proper tools furnished for that purpose.

BRAND.

204. The position of the brand on the rail is immaterial whether right or left, inside or outside, but its position must be uniform in the same line of rails. When new rails are being laid different brands must not be mixed.

CURVING.

205. All rails for curves over 3 deg. must be separately curved by an approved rail bender before being placed in the track. The sledging or dropping of rail on ties to curve them is forbidden.

CARE IN CURVING.

206. Particular care must be given to insure uniform curvature of the rails throughout their length, in accordance with the following table:

For	2	deg. curve, 30 ft.	½	in.	33 ft.	⅝	in.
"	4	" "	¾	"	"	⅞	"
"	5	" "	1¼	"	"	1⅜	"
"	6	" "	1½	"	"	1¾	"

EXPANSION.

207. Proper allowance must be made for expansion according to temperature of rail when being laid. When the average thermometer reading on 30 or 33 feet rails, is:

90 deg. Fah., give		0	in. expansion space
70 to 90 deg. Fah., give		1/16	"
50 to 70	" "	⅛	"
30 to 50	" "	3/16	"
10 to 30	" "	¼	"
10 to 10	" "	5/16	"

208. Rails must not be bumped together when being laid.

IRON SHIMS.

209. Proper expansion must be secured by using iron shims, according to the above specifications, except where track is laid on a steep grade, when sawn wooden shims of proper thickness will be provided. They must be left in place until track is fully spiked, bolted and anchored, and then removed.

THE PLATES.

210. Where tie plates are ordered they must be placed in pairs one on each end of the tie. The end with the widest margin must be placed on the outside of the rail.

SPIKING ON TIE PLATES.

211. On tangents only two spikes should be used in each plate; on curves use three or four as required. In general, on curves less than 6 degrees, three spikes should be used and on sharper curves, four spikes.

HOW PUT ON.

212. Tie plates must be forced into the ties before trains are allowed to run over them.

RAIL BRACES.

213. Rail braces must be used on guard rails and switches as shown on the standard plans, and on curves where ordered.

SWITCHES.

214. Switches must be put in track in accordance with the standard plans No stub switches shall be allowed in main line or cross-overs.

STUB SWITCHES.

215. At all stub switches, bridle rods must be confined between two ties, placed six inches apart.

LEAD RAILS.

216. Lead rails in all turnouts must be curved separately with the rail bender before being laid. The narrow places between rails at frogs, guard rails and switches, must be filled with standard wooden blocks.

DIFFERENCE IN WEIGHT OF RAILS.

217. When rail of a heavier pattern is used in the main track than in the side track, the main track pattern must extend as far up the side track at least as far as the switch ties extend.

DERAILING SWITCHES.

218. A standard derailing switch, stop block or safety switch must be placed at the clearance point of all sidings when ordered.

GUARD RAILS.

219. Guard rails must be placed at frogs, switches, and when ordered, on sharp curves and bridges.

TRACK MARKERS.

220. All standard track markers and signs must be placed strictly in accordance with the standard plans.

LENGTHS PAID FOR.

221. Only such sidings, spurs, turnouts, wyes, and other track, and such lengths thereof as ordered, will be estimated and paid for.

SURFACING.

222. The track will be surfaced with material obtained from the side, or with train hauled material as directed by the Engineer, but in no case shall the bottom of the ties be raised more than 3 inches above sub-grade.

SURFACING FROM THE SIDE.

223. "Surfacing 'A' " will include all work of procuring surfacing material from side ditches or other places where allowed, putting under the track, surfacing, lining and all other work incident to the preparation of the track for running work trains, where material for surfacing is obtained from the side.

SURFACING FROM TRAIN HAULED MATERIAL.

224. "Surfacing 'B'" will include the cost of all train hauled material under the track, surfacing, lining and all other work incident to the preparation of the track for running work trains where surfacing is done with train hauled material other than ballast. The surfacing must be kept up with the track laying as far as possible. All new tracks must be brought to surface and tamped up before it is run over. Rails that are damaged by reason of neglect on the part of the Contractor will be replaced at his expense.

TRAIN HAULED FILLING.

224 X. Where there is not sufficient material suitable for making embankments by men and teams within reasonable haul, of which the Engineer shall be judge, and it becomes necessary to make use of the track laid at the expense of the Commissioners to haul material for such purpose by train either for the widening of embankments to their full width or raising them to their full height, or for the purpose of filling temporary trestles, the Contractor will have the use of the Commissioners' rails, fastenings, and necessary switches for such purpose, it being understood that the track laying will only be paid for once by the Commissioners, and that any damage to rails, fastenings, or switches while in such service shall be paid for by such Contractor to the Commissioners, or the Commissioners may deduct it from the monthly or final estimate due, or to become due to the Contractor. The price given in the schedule for such train hauled filling shall include the cost of all temporary trestles which the Contractor may require, which he shall erect according to his own plans and at his own cost and risk, and all tools, plant, material and labor necessary for the loading, hauling, putting in place and trimming, as directed by the Engineer. The limit to which the contractor will be called upon to haul such train hauled filling at the price stated in this schedule will be five (5) miles; beyond such distance a price of one cent (.01) per yard per mile will be paid him, the measurement of such haul being made to the nearest mile, one-half mile or over counting as a full mile. Measurements of all train hauled filling will be made in excavation. No classification other than common excavation will be allowed on train hauled filling from borrow pits.

BALLASTING.

225. Ballasting will include the loading, hauling, unloading alongside of track, and transportation of all material hauled by train for the purpose of ballasting the track, said material to be duly accepted as ballast by the Engineer. Ballast shall consist of broken stone, gravel, or coarse sand, approved by the Engineer.

DITCHES.

226. All road and surface ditches will be left clear and free, so open and extended as to conduct water freely and quickly from the roadbed, and all side ditches must be left unobstructed.

SLOPES.

227. The side slopes and ditches must be left neat and smooth, and free from all rubbish, materials and obstructions.

Material for ballasting must not be taken from the slopes of embankments.

LAND.

228. The land for ballast pits and approaches thereto will be furnished by the Commissioners and approved by the Engineer. In selecting land for this purpose, a preference will always be given to those points where the best material can be procured within a reasonable distance as determined by the Engineer. During the working of any pit, should the material be found unfit for ballasting, the Engineer shall compel the Contractor to close such pits and open others. The cost of clearing land for ballast pits outside the right-of-way and grading and laying the main branch track to pits (but not sidings in same), shall be paid for according to the general schedule of prices.

DISTRIBUTION OF BALLAST FOR EMBANKMENT.

229. The surface of the ballast pits shall be stripped of soil where such exists, and no material whatever shall be placed on the roadbed but good, clean gravel. The maximum size of gravel must not be greater in diameter than three (3) inches.

FIRST LIFT.

230. Material sufficient for the first lift of six inches shall be delivered along the track, the track must then be raised so that there will be an average depth of six inches below the ties and the ballast must be well packed and tamped under and around them. As the raising proceeds, the end of the lift shall extend on not less than three rail lengths, and before trains are allowed to pass over the inclined portion of the track it must be made solid to prevent bending the rails or twisting the joints.

SECOND LIFT.

231. Precisely the same method shall be followed in making the second lift, so as to secure a uniform thickness of twelve (12) inches under the ties. The ballast shall fill the space between the ties full and shall conform to the section shown in the standard drawing.

TAMPING.

232. Three feet at each end of each tie shall be thoroughly tamped, the centre of the tie to be loosely tamped. After this lift, the track shall be centred, lined, topped, surfaced, and trimmed off to the proper form and width.

BALLASTING TO BE KEPT UP TO TRACK LAYING.

233. The ballasting must be kept up to the track laying in so far as is possible. All new track must be brought to surface and tamped up before it is run over. Rails that are damaged by reason of neglect on the part of the Contractor to comply with these requirements will be replaced at his expense.

LINING.

234. When the surfacing and ballasting is completed, the track must be in perfect line, surface and gauge, and must be so maintained by the Contractor until it is accepted by the Commissioners for operation. This contemplates a second adjustment of track to line and grade after it is settled under traffic. The schedule price for ballasting will include all work mentioned in Clauses 225 to 234 inclusive, no over haul being allowed.

Specifications for Fences.

FENCE.

235. The fence shall consist of an approved wire fencing at least 4 feet 6 inches high properly fastened to cedar posts as hereinafter specified, with suitable staples, stretched and built in a workmanlike manner in every respect, and to the satisfaction of the Engineer. The posts shall be of sound, live cedar, 5 inches in diameter at the top, 8 feet long, reasonably straight, with limbs and knots dressed off smoothly, with the bark removed. Such posts shall be spaced sixteen and one-half feet centre to centre, placed three feet deep in the ground, and thoroughly tamped. At all road crossings, farm crossings, jogs in the line of the fence and at intervals not exceeding 20 rods braced panels shall be built, having the posts spaced eight feet apart and a diagonal brace piece at least five inches in diameter at the top shall run from a point about one foot below the top of the end post to a short distance above the ground line of the adjacent post. The diagonal piece shall be notched into the post and be thoroughly nailed thereto with 6-inch wire nails. The posts for brace panels shall be carefully selected, not less than 8 inches diameter at the top and ten feet long. They shall be set four feet in the ground and firmly tamped. After the wire is strung the top of the post shall be cut true to a line and at an angle of 45 degrees for the purpose of shedding rain.

POSTS IN SHALLOW SOIL.

236. When the depth of the soil will not admit of the post hole depth called for above, "T" or "A" frame posts as shown on the standard drawing will be required. The foot of such posts shall be loaded with stones to prevent overturning.

FENCES AT HIGHWAY CROSSINGS.

237. At all highway crossings the fence shall be turned into the cattle guard and the posts shall be spaced equally apart to enable a sixteen foot 1 inch x 8 inch board to be nailed at the end and the centre, to the top of the posts. Such board being on edge and the line of boards to run from the fence to the cattle guard.

GATES.

238. Gates shall be made of an approved pattern of gas pipe frame and strung with wire, and to include suitable hinges and fastenings.

CATTLE GUARDS.

239. Cattle guards shall be placed at all highway crossings. They shall be of an approved pattern, made in sections with provision for removal without injury to the guard. The form and section to be approved of by the Engineer.

Highway Crossings.

HOW GRADED.

240. The approaches to the rail level shall be graded on a slope not more than five (5) per cent. with width of roadway, of not less than 20 feet.

SIGNALS.

241. At each highway crossing at rail level, there shall be placed a sign-board with the words "Railway Crossing" on both sides of the board, and in the Province of Quebec, in French also the words ("Chemin de Fer") in black letters on white ground, six inches in height. The board is to be framed into a cedar post firmly bedded at least four feet in the ground and at least 13 feet above the surface of the road.

PLANKING.

242. The highway at rail level shall be planked with three inch plank, packed up with 2 x 3 inches pieces resting on the ties. To have four planks 12 inches wide between the rails and two outside, one on either side level with the track. For single track crossing, to be 20 feet in length, at right angles to the direction of the highway.

FARM CROSSINGS, HOW GRADED.

243. The approaches shall be graded to insure a good roadway. When practicable, not to exceed a five (5) per cent. approach, the width of the finished road to be twelve feet. The crossing to be planked with four planks, two inside and two outside the rails. The interim space between the inner planks to be thoroughly packed with hard stones or gravel.

General.

CONTRACTOR TO PROVIDE WAGON ROADS, ETC.

244. The Contractor, at his own cost, must provide all wagon roads to reach and carry on the work; he must also provide all tools of every description and all supplies required for the prosecution of the work.

PRICES FOR BUILDINGS TO INCLUDE FOUNDATIONS.

245. The prices paid for buildings, water tanks, turntables, depots, section houses, and other standard structures, shall be as per schedule of prices.

MATERIAL TO BE FURNISHED BY THE COMMISSIONERS.

246. Unless otherwise provided, it shall be understood that the Commissioners are to furnish the Contractor all the rails, fastenings, tie plates, track bolts, spikes and steel bridges, either on board cars at the nearest accessible point by rail or at steamer landing, or at points along the line of road to be constructed, as may be directed by the Chief Engineer.

OTHER MATERIALS.

247. All other materials required for the construction of the Railway shall be supplied by the Contractor at the schedule price for same.

CONTRACTOR TO HANDLE ALL MATERIAL.

248. The Contractor will be required to handle all material at his own expense, including unloading and loading in cars, and all material must be unloaded

from cars within three days after its arrival, unless special authority to the contrary is given by the Engineer. Any violation of this rule will subject the Contractor to the usual demurrage.

HAULING.

249. Whenever cross-ties, piles, timber or other material is delivered along the line of the road, the Contractor must do the hauling to put in place, including the loading in cars when necessary.

SPECIFICATIONS FOR STANDARD TELEGRAPH LINE.

POLES

All poles shall be of live green cedar, sound, straight, cut square at both ends, all knots trimmed close, thoroughly peeled to within five feet of the butt and must not be less than seven (7) inches in diameter at small end, inside the bark.

POLE-LINE.

Shall be of twenty-five (25) foot poles for body of line and longer lengths at railway and highway crossings, through railway yards, and so proportioned to the contour of the country, that the wires may be strung without abrupt changes of level.

Poles shall be placed generally at six (6) feet inside of the right-of-way limit, except on such cuttings and embankments that the nature of the formation renders such position unsuitable, but no pole shall be set at a distance less than twelve (12) feet from the nearest rail. In wooded country, poles may be set thirty feet from the nearest rail.

Under no circumstances shall a pole or poles be set in a position that would interfere with a clear view of railway signals from station windows or engine cabs. In locating the line on straight sections, poles shall be placed at equal distances of one hundred and fifty (150) feet, and in curves at one hundred and thirty-five (135) feet.

Through station yards and at all railway and highway crossings poles not less than thirty (30) feet in length shall be set. All poles shall be set perpendicularly, except on curves or corners where they can be leaned *slightly* against the strain.

Holes shall be dug large enough to admit the poles without hewing, and shall be full size at the bottom, to permit of the use of iron tampers.

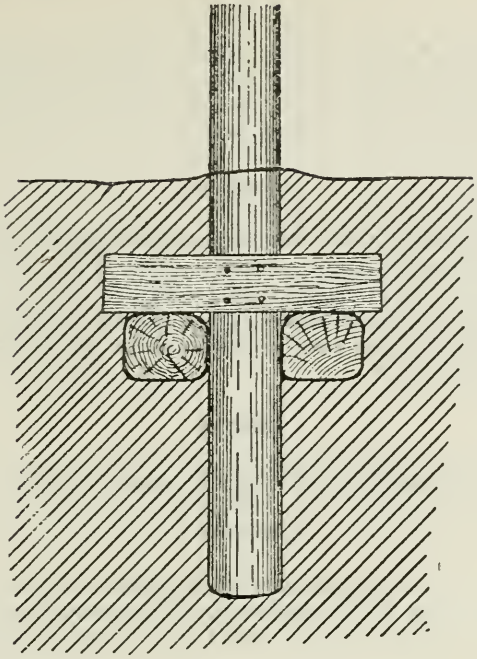
When the pole is placed in position, one shovel only shall be used in filling the hole, and two tampers used in packing the filling continuously until the hole is filled. The soil must be piled above the surface and firmly packed around the pole.

All poles shall be set beneath the surface of the ground as follows:—

25 and 30 foot lengths	5 feet
35 and 40 foot lengths	6 feet
45, 50 ft. and longer lengths	7 feet

Where solid rock is encountered, deduct one foot from the above scale of depths.

In wet or marshy locations, or where it is necessary to set poles on slopes, they should be set at a greater depth than previously indicated, to prevent the possibility of being blown over by wind or lifted by frost.



SIDE VIEW OF POLE WITH FOOT FOR VERY SOFT MARSH. CRIBBING MADE OF PIECES OF OLD POLES. LENGTHS AS REQUIRED.

In soft or marshy ground, weather braces shall be framed with a foot to hold the poles from being pushed into the ground. The size of the foot shall be determined by the strain the brace is designed to hold.

Instead of the foot, it will be permitted, when the ground is so soft as to prevent proper tamping, to fill in with stone, and brace the pole in four directions.

Poles to be set in quicksand shall be tapered from a point eighteen (18) inches above the butt to the butt, by the use of an axe, as piling is pointed before being driven.

FITTING OF POLES.

The top of the pole shall be roofed, and shall have not less than two (2) gains four and a quarter ($4\frac{1}{4}$) inches wide by three-quarters ($\frac{3}{4}$) of an inch deep, spaced twenty-two (22) inches on centres. The centre of the upper gain shall be ten (10) inches from the apex of the pole roof.

The direction of the apex of the "roof" shall be at right angles with the cross-arm, or parallel to the wires.

BRACES.

All braces shall be of cedar and set at a uniform distance from the butt of the pole, at least six (6) feet wherever possible, the top of the pole brace shall be just below the bottom gain, and shall be fastened with lag bolts.

LINE PROPS.

Line props shall be used on every fifteenth (15th) pole, placed parallel to the line in alternate positions. Props shall be of cedar and not less than fifteen (15) feet in length, set in the ground from two to three feet, not less than six (6) feet from the butt of line pole, and shall be fastened with lag bolts.

ANCHORS.

Through station yards, and for one thousand (1,000) feet each side and beyond stations, braces must not be used; anchors only shall be used.

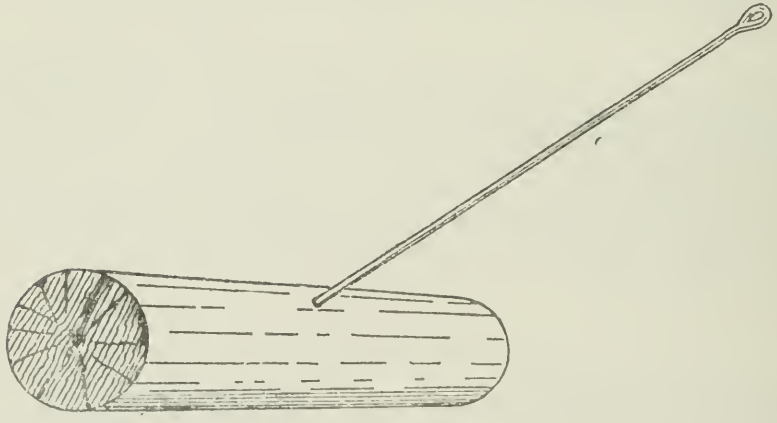
All excavations for anchor logs shall be five (5) feet deep wherever practicable. If impracticable to obtain this depth on account of the nature of the ground, the excavation may be made not less than three and one-half (3½) feet deep. Anchor logs must be of cedar.

CURVES.

All poles in curves shall be re-inforced by anchor guys or props.

CROSSINGS.

At all crossings, the poles on each side shall be double armed and of such height as to allow the arm in the bottom gain to carry the wires at least twenty-five (25) feet above the surface of the ground or rail level.



ANCHOR 5 FEET LONG, MADE OF CEDAR, DEPTH TO SUIT REQUIREMENTS.

CAPACITY OF LINE.

The line shall have an ultimate capacity for two (2) six (6) pin cross-arms and twelve (12) wires.

GUY WIRES.

Guy wires shall be of seven (7) strands No. thirteen (13) gauge steel rope. The ends of the guys shall be wrapped twice around the pole immediately under the lowest gain, and fastened to the guy rod. The ends of the wire shall be fastened by standard two bolt clamps. Under no circumstances shall guy wire be secured to the anchor beneath the surface of the ground.

In locating anchor guys, the distance from the butt of the pole shall not be less than one-fifth (1–5th) the length of the pole. In exposed places, guy wires must be protected by a guard of wood or iron pipe.

MECHANICAL ANCHORS.

An approved mechanical device may be substituted for the anchor log and iron guy rod.

OFFICES POLES.

Office poles shall be securely guyed to keep the strain of the wires off the office fixtures and buildings.

PLACING CROSS ARMS.

When planting poles, the cross-arms must face each other on every alternate span between poles.

Cross arms must be secured by two (2) seven (7) inch lag bolts, and two (2) iron braces as required by standard specifications. Braces to be fastened to the back of the cross-arms.

LONG SPANS.

At all crossings with spans of two hundred (200) feet and over, poles on either side shall be equipped with double arms.

LIGHTNING ARRESTORS.

A lightning rod of number eight (8) iron wire shall be securely attached to every tenth (10th) pole, with one and one-half (1½) inch staples. The rod shall project three (3) inches above the top of the pole to within one (1) foot of the butt, where four (4) spiral turns will be made around the pole, and a hand coil of about (6) feet fastened to the bottom. All office and cable poles shall be equipped in the same manner, except that two (2) number eight (8) iron twisted wires shall be used.

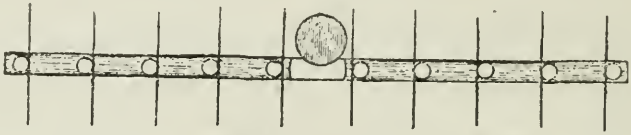
WIRES.

The first wire erected shall be No. eight (8) gauge, iron, weight 400 pounds per mile. The second wire shall be No. 6 gauge, iron, weight 574 pounds per mile.

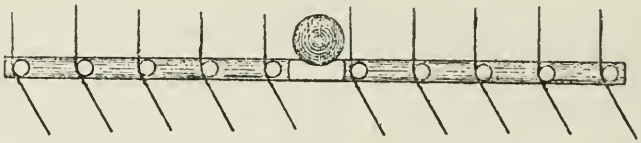
ERECTION OF WIRES.

String wires so as to avoid kinking and other damage, and remove all tags. Wires shall be tied on the side of the insulator nearest the pole, except on curves or corners where it is necessary to place it on the opposite side so that the strain will be against the insulator. (See sketch).

The ties must have three (3) turns on each side of the insulator, and the ends bent in and pointed toward the groove in the insulator.



STRAIGHT LINE LOCATION OF WIRES ON INSULATOR.



CURVE OR CORNER LOCATION OF WIRE ON INSULATOR.

JOINTS.

When connecting iron wires, first clean the wire, then use pliers and connectors, giving not less than five (5) turns on each side of the joint. All joints must be soldered.

EQUIPMENT.

The contractor shall furnish all the batteries, instruments, switchboards and all necessary equipment, in every particular, to secure a first-class installation, having due regard to the requirements of the service, the whole to be done in a workmanlike manner, fully guaranteed, and to the satisfaction of the Chief Engineer.

COPPER WIRES.

Extraordinary care must be taken to prevent kinking or other damage. When stringing copper wire, draw out by a rope over the cross-arm the full length of the coil, then pull up with approved grips. The wire shall then be tied throughout, the Grips being left on until the next coil is strung, the joint made, wire pulled up, and Grips attached in the same manner.

No mechanical device except approved Grips shall be used in pulling up copper wire.

TYING.

Copper wire shall be tied by hand. One side of the tie shall pass over the line wire, making five (5) complete turns, the other side shall pass under the line wire, also making five (5) complete turns.

Ties shall be of annealed copper wire of the same gauge as line wire, not less than twenty (20) inches in length, and must be well stretched before being used. After making the full number of twists on the line wire, turn the ends back against the line wire toward the insulator. These ends shall not be cut.

JOINTS.

Copper wire shall be connected by approved sleeves. Each sleeve shall have three (3) complete twists. Two pairs of approved splicing clamps only shall be used in making the joints.

After the joint is made, the end of the wire shall be bent at right angles to the joint and cut close to the side of the sleeve.

String all wires so that the sag between the poles shall be as given in the following table, making the allowance indicated for the temperature and length of span.

SAG IN ALL LINE WIRE.

Sag Expressed in Inches.

Temperature	Span		
	135 ft.	150 and 165 ft.	200 ft.
30 below	$3\frac{3}{8}$	$4\frac{1}{2}$	8
10 "	$3\frac{3}{4}$	5	9
10 above	$4\frac{2}{8}$	$5\frac{3}{4}$	$10\frac{1}{4}$
30 "	$5\frac{1}{8}$	$6\frac{3}{4}$	12
60 "	7	9	$15\frac{3}{8}$
80 "	$8\frac{5}{8}$	$11\frac{1}{4}$	$18\frac{3}{4}$
100 "	11	14	$22\frac{1}{4}$

SPECIFICATIONS FOR MATERIAL.

SPECIFICATIONS FOR GALVANIZED IRON TELEGRAPH WIRE.

1. The wire to be soft and pliable, and capable of elongating 15 per cent. without breaking, after being galvanized.

2. Extreme tensible strength is not required, but the wire must not break under a less strain than two and one-half times its weight in pounds per mile. Tests for tensile strength will be made by direct application of weight, or by means of a lever, at the option of the inspecting Officer.

3. Tests for ductility will be made as follows:—The pieces of wire will be gripped by two vises, six inches apart, and twisted. The full number of twists must be distinctly visible between the vises on the six inch piece. The number of twists in a piece of six inches in length must not be less than 15.

4. The weight per mile for different sizes of wire will be:—For No. 6 gauge, 574 lbs.; No. 8 gauge, 400 lbs.; No. 9 gauge, 330 lbs.; or, as near these figures as practicable. A variation of not more than two per cent. will be allowed.

5. The electrical resistance of the wire in Ohms per mile at a temperature of 68 degrees Farenheit, must not exceed the quotient arising from dividing the constant number 5000 by the weight of the wire in pounds per mile. Example:—The mileage resistance of a wire weighing 400 pounds per mile, should not exceed $5000 \div 400 = 12.50$ Ohms.

6. The wire must be cylindrical and free from scales, inequalities, flaws, sand splits and other imperfections and defects. Each coil must be warranted not to contain any weld, joint or splice whatever in the rod before drawn. All wire to be "killed" or stretched about two per cent. before delivery.

7. It is desired to obtain the wire in coils, all of one piece. If this cannot be undertaken, the contractor may tender for a supply of wire with two pieces only to the coil, joined by the ordinary twist joint and carefully soldered or electrically welded. It should be stated in the tender whether there will be one or two pieces in each coil. The length of the wire in each coil shall be as follows:—No. 8 B.W.G., or smaller, one-half mile; No. 6 B.W.G., one-third mile. A variation of not more than three per cent. from the above will be allowed. The grade of iron wire to be used is that known as "Extra Best Best."

8. The wire must be well galvanized, and capable of standing the following tests:—The wire will be immersed in a saturated solution of sulphate of copper at 68 degrees Fahrenheit, and permitted to remain one minute, and then wiped clean. This process will be performed four times. If the wire appears black after the fourth immersion, it shows that the zinc has not all been removed and that the galvanizing is well done, but if it has a copper color, the iron is exposed, showing that the zinc is too thin.

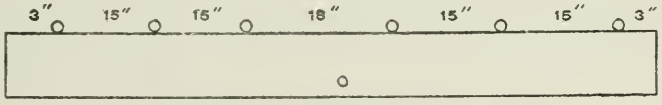
SPECIFICATIONS FOR HARD-DRAWN COPPER LINE WIRE.

Each coil must be drawn in one continuous length without joints. The wire must be cylindrical and free from scales, flaws, inequalities and other imperfections. It must have a tensile strength to sustain three times its weight in pounds per mile; must withstand, without breaking, thirty twists in six inches, and must be capable of elongation 1¼ per cent. before breaking; must permit of being wrapped a number of times about its own diameter, and unwrapped without showing signs of breaking.

Its electrical resistance per mile in international Ohms. at 68 degrees Fahrenheit, must not exceed the quotient arising from dividing the constant 912 by its own weight in pounds per mile.

CROSS-ARMS.

The cross-arms to be perfectly sound, seasoned, straight grained, red pine or British Columbia Douglas Fir, free from knots or other defects, surfaced on all sides, rounded off on top edge to produce the full size of seven (7) foot lengths, four and one quarter (4¼) inches by three and one-quarter (3¼) inches, bored for six (6) one-half (½) inch holes to take standard steel pins, spaced as per sketch. Two (2) central lag screws holes nine-sixteenths (9-16) of an inch in diameter bored in each cross-arm, staggered vertically three (3) inches.



SIZE WHEN DRESSED 4¼" x 3¼".

PINS.

To be of approved steel pattern.

INSULATORS.

Double petticoat design, weight twenty-five (25) ounces, to be manufactured of best glass used for the purpose, free from blow holes and other defects. The threading shall be neatly and fully formed and the whole shape made uniformly true throughout.

The initial "T.C.R." shall be blown on the outside surface of the glass on the margin below the tie line groove, in block letters one-half an inch in height.

CROSS-ARM LAG SCREWS.

These are to be of wrought iron or steel one-half an inch in diameter, full seven inches long under head, with full three inches of thread, six (6) threads per inch, gimlet pointed, with standard square heads with flat circular top, surface of five-eighths (⅝) inch in diameter with remaining surface and corner pressed to the standard rounding surface.

Washers: one and three-eighths (1⅜) inch by nine-sixteenths (9–16) inch. No. twelve (12) gauge.

CROSS-ARM BRACES.

To be of wrought iron or steel, one inch wide, twenty-eight (28) inches long, seven-thirty-second (7–32) inch thick, with a hole punched at each end seven-sixteenths (7–16) of an inch in diameter, the centre of which shall be three-quarters (¾) of an inch from end of brace.

BRACE BOLTS.

To be one-half (½) by three and one-quarter (3¼) inches. Three-eighths (⅜) by two and one-quarter (2¼) inches. Gimlet pointed, flat head, standard make.

GUY RODS.

To be of wrought iron or steel, five-eighths, (⅝) inch diameter, five foot (5) six inches (6) in length, threaded for four (4) inch plate and nut, top end welded to form a loop.

Turntables.

Shall be of medium steel, plate girder type, seventy-five feet long, with a capacity of 200 tons.

Track Scales.

Shall be of 150 tons capacity, 50 feet long and shall be housed from the weather, and shall consist of the most approved pattern of railroad track scales, with concrete or masonry foundations, and all to the satisfaction of the Engineer.

Buildings.

Tool houses, outbuildings, section houses, passenger or combination freight and passenger station buildings, freight sheds, engine houses, car and locomotive repair shops and such other buildings as may be required, shall be built in accordance with the detailed plans and specifications which may be furnished from time to time by the Chief Engineer.

Water Station.

Water tanks shall be built frost proof. Minimum capacity of 50,000 gallons, resting on concrete or masonry foundations, in accordance with the detailed plans and specifications, and to the satisfaction of the Chief Engineer.

Steel Bridges.

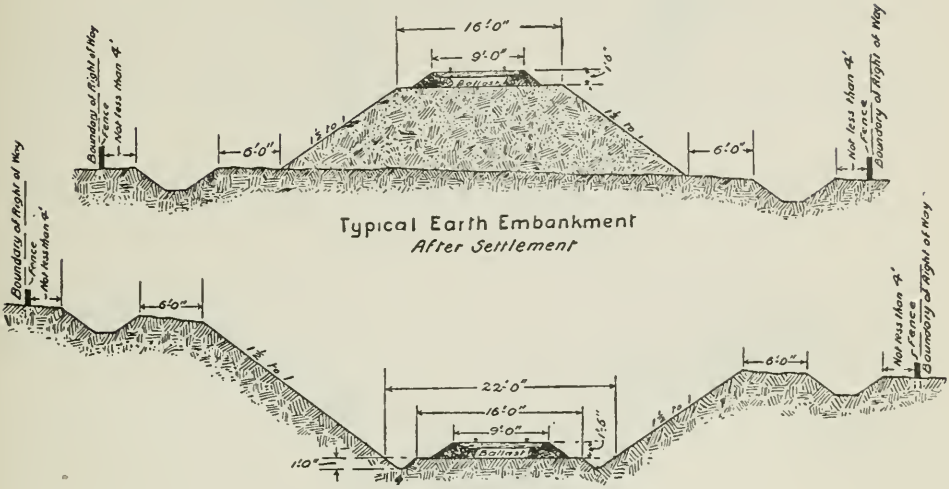
Shall he designed and built in accordance with the provisions of the general specifications for railway bridges, issued by the Department of Railways and Canals, 1905 edition. The class of loading to be used for all bridges is that designated HEAVY.

SESSIONAL PAPER No. 123

THE NATIONAL TRANSCONTINENTAL RAILWAY.

EASTERN DIVISION.

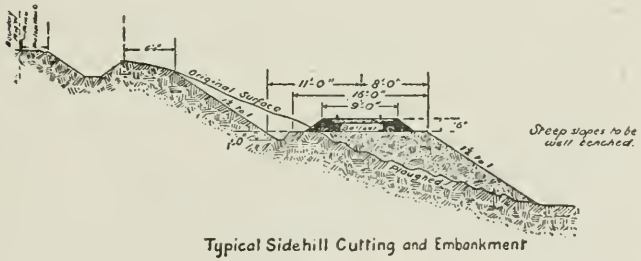
DRAWING No. 1.



Typical Earth Embankment
After Settlement

Typical Earth Cutting

DRAWING No. 2.



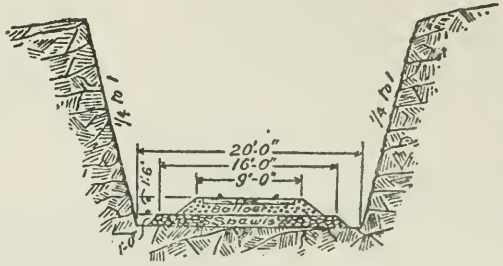
Typical Sidehill Cutting and Embankment

Typical Embankment in Water
Shewing Riprap Protection

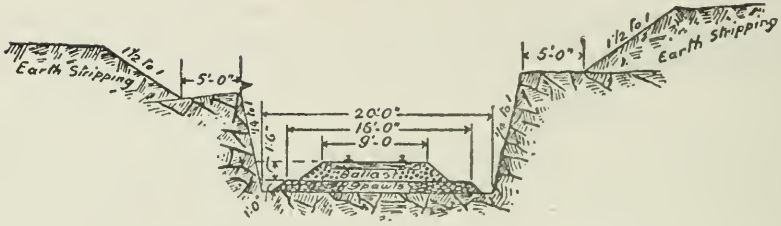
THE NATIONAL TRANSCONTINENTAL RAILWAY.

EASTERN DIVISION.

DRAWING No. 3.

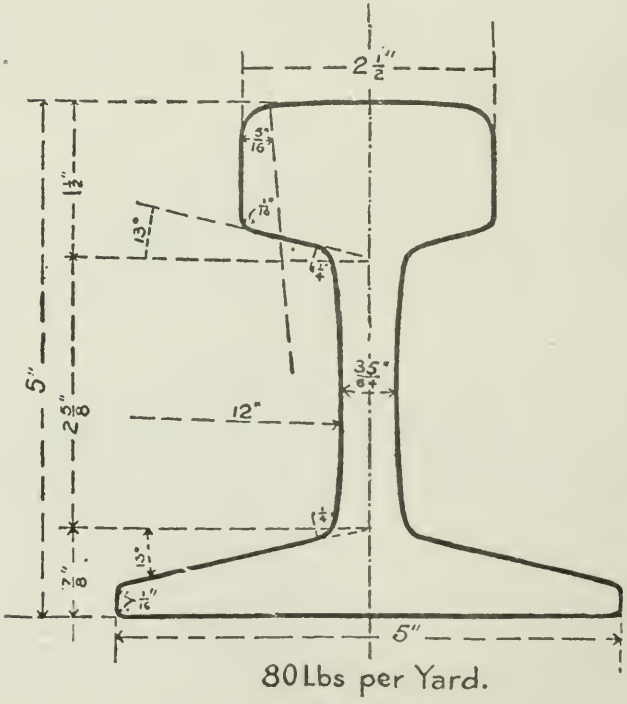


Typical Rock Cutting.



Typical Rock and Earth Cutting.

DRAWING No. 4.



80 Lbs per Yard.

Approved,

Chief Engineer, Eastern Division, Transcontinental Railway.

Approved,

Chief Engineer, Grand Trunk Pacific Railway.

Approved,

Chief Engineer, Department of Railway and Canals, of Canada.

Ottawa,----------190----

TRANSCONTINENTAL RAILWAY

(Eastern Division)

District.....Sec.

Contractor.

Estimate of work done and materials furnished for the month of

.....190.....

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
1	Clearing, including close cutting	acre			
2	Trees cut down outside right of way	each			
3	Grubbing	acre			
4	Solid rock	c. yd.			
5	Loose rock and other materials (sec. 35 spec.)	"			
6	Common excavation	"			
7	Excavation in foundations, no coffer dams	"			
8	Excavation of foundation within coffer dams	"			
9	Overhaul all materials per c. yd. per 100 ft. over 500 ft. haul	"		0 01	
10	Piles delivered as per engineer's bill	lin. ft.			
11	Pile driving	"			
12	Sheet piling per M. ft. b.m.				
13	Wakefield type "				
14	Cross-logging, 1 ft. deep with 18-in. brush-work	acre			
15	Pole drains	lin. ft.			
16	French stone drains	"			
17	Paving in culverts (not laid in cement)	c. yd.			
18	Crib filling with stone	"			
19	Hand laid rip-rap	"			
20	Pierre Perdu rip-rap	"			
21	Piling out reserved stone from rock cuttings	"			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
22	Round logs in cribs	lin. ft.			
23	Cedar mud sills, per M. ft. b.m.				
24	Framed trestles per M. ft. b.m. except stringers				
25	Caps, walings and braces for pile trestles, per M. ft. b.m.				
26	Sawn ties and guard rails for bridges per M. ft. b.m.				
27	Stringers per M. ft. b.m.				
28	Cedar timber in culverts, 8-in. x 12-in., 10 in. x 12-in., and 12-in. x 12-in., per M. ft. b.m.				
29	Plank in highway and private road crossings per M. ft. b.m.				
30	Timber, best quality, for culverts, per M. ft. b.m.				
(*a*)	Timber in coffer dams or ordinary foundations	M. ft. B.M.			
(*b*)	Timber in caissons	"			
	Vitrified pipe culverts—				
33	15-in. diameter	lin. ft.			
34	18-in. diameter	"			
	Reinforced concrete pipe—				
36	14-in. diameter	"			
38	18-in. diameter	"			
40	24-in. diameter	"			
41	30-in. diameter	"			
42	36-in. diameter	"			
44	48-in. diameter	"			
46	60-in. diameter	"			
47	4-in. agricultural under tile drains	"			
	Cast iron pipe culverts—				
49	18-in. diameter	"			
51	24-in. diameter	"			
52	30-in. diameter	"			
53	36-in. diameter	"			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
55	48-in. diameter	lin. ft.			
57	60-in. diameter	"			
58	Concrete facina minture 1-2, 2½-in. thick, including forms	c. yd.			
59	Concrete 1-2-4 coping course 6-in. thick, including forms	"			
60	Concrete 1-3-5, including forms	"			
61	Concrete 1-3-6, including forms	"			
61a	Concrete 1-2-5, including forms and centres	"			
62	Concrete 1-3-5 in arch culverts, including forms and centres	"			
63	Concrete 1-3-6 in arch culverts, including forms and centres	"			
64	Concrete 1-3-6 in box culverts, including forms	"			
65	Concrete 1-4-8 ordinary foundations including forms	"			
66	Concrete 1-4-8 walls of building including forms	"			
67	First-class masonry	"			
68	Second-class masonry	"			
69	Third-class masonry	"			
70	Dry masonry	"			
71	Masonry in arch ring, including centering	"			
72	Track-laying in main line with ordinary frogs, switches, and sidings, including light surfacing 'A'	mile			
73	Track-laying in yards at terminals	"			
74	Train hauled surfacing 'B' no overhaul allowed	c. yd.			
(c)	Train hauled filling, including temporary trestle	c. yd.			
(d)	Overhaul on train hauled filling per cubic yard per mile over five (5) miles			0 01	
(e)	Removal of moss per cu. yd., no overhaul allowed				
75	Ballasting, no overhaul allowed	c. yd.			
76	Ties, first-class	"			

Item	Description of Work	Measure	Quantity	Rate	Amount
				$ cts.	$ cts.
77	Ties, second-class	each			
78	Ties for switches, sawn to dimensions per M. ft. b.m.				
79	Public road signs	each			
80	Mile posts, whistle posts, and road signs	"			
81	Semaphores at stations, complete	"			
82	Interlocking appliances, complete, eight levers including all connections, signals, etc	"			
83	Each additional lever	"			
84	Fencing	rod			
85	Gates	each			
86	Tunnels, rock sections (unlined)	lin. ft.			
87	Tunnels, lined	"			
88	Tunnels, concrete lining	c. yd.			
89	Tunnels, masonry lining	"			
90	Drainage tunnels, 4 c. yds. per ft	lin. ft.			
91	Telegraph line	mile			
92	Water tanks, 50,000 galls. complete, including foundations	each			
93	Turntables, including everything except foundations	"			
94	Track scales, including everything except foundations	"			
95	Tunnel shafts	c. yd.			
96	Iron in drift bolts	lbs.			
97	Iron in screw bolts	"			
98	Forged or cut spikes	"			
99	Cast-iron washers and separators	"			
100	Cattle-guards (3 sections)	3 sections			
101	Cast-iron pile shoes	each			
102	Cast-iron water pipes of any dia. from 4" to 10" per ton of 2,000 lbs				
103	Steel imbedded in concrete	lbs.			

N. T. R.

INVESTIGATING COMMISSION

Exhibit 11

Correspondence in connection with calling for Tenders.

(See Page 19 of Report)

OTTAWA, Jan. 16th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

DEAR SIRS:—

In accordance with your verbal instructions of to-day, I understand we may defer for a time the preparation of plans and profiles for filing with the Department in order to rush to completion by the 27th inst. a complete set of tracings from Winnipeg to Lake Superior Junction and from Quebec to point near La Tuque; without showing quantities on the profiles. I am putting on extra men and working the regular staff at night in order to insure this, and, in the meantime, would ask the Board to kindly instruct me definitely by what sections of the Act we are to be guided in preparing plans for filing and from whom I shall ask instructions as to whether plans and profiles have to be made in triplicate tracings or whether blue prints will answer. I have the printed regulations of the Permanent Railway Board in this regard but understand they do not apply.

Yours very truly,
(Sgd.) D. MACPHERSON,
Ass't. Chief Engineer.

OTTAWA, Jan. 18th, 1906.

File No. 1193.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

DEAR SIRS:—

In compliance with your request for a recommendation as to whether quantities and classification of material should be shown on our profiles on which tenders are based. It seems to me inadvisable to show quantities, as we are calling for tenders on first location profiles, which are likely to be modified by revision. It would, however, give tenderers some useful general information to mark on the different large cuttings the supposed classification, but it should distinctly be understood that this information is only given for what it is worth and cannot, under the circumstances, be accurate or in any way binding on the Commissioners.

Yours very truly,
(Sgd.) D. MACPHERSON,
Ass't. Chief Engineer.

OTTAWA, Jan. 26th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

DEAR SIRS:—

I beg leave to report, for your information, that I have had all the plans and profiles retraced so as not to show quantities, and that the complete sets of blue prints, to show tenderers, which I promised to have ready for Saturday, were

completed Thursday night. I was enabled to do this by the employment of a few extra men and the hearty co-operation of the staff, who worked Saturday afternoon and every night since the order was given.

Yours very truly,
(Sgd.) D. MACPHERSON,
Acting Chief Engineer.

OTTAWA, Jan. 27th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Dear Sirs:—

In compliance with your request for my opinion as to the advisability of including the masonry substructures of bridges in the general contract and excluding the steel superstructures; I would beg leave to say that it is not an unusual thing to let masonry contracts separate from the general contract, when letting ordinary contracts for railways in settled districts, where the means of transporting material would not be largely under the control of the general contractor; but in such a large contract as you propose letting, through an unsettled country with restricted means of communication, any contractor capable of undertaking the work as a whole would necessarily have better facilities and could do the masonry work cheaper than anyone else. Having regard to all the circumstances, it seems therefore advisable to let masonry substructures in the general contract. Steel superstructures should, as a general rule, be let by separate contract and I would advise that the same Company or Companies who manufacture the bridges should erect them, otherwise it is difficult to fix the responsibility in case of any damage to the bridges during erection. This might make it necessary to modify clause 246 of the Specifications, in regard to delivery of steel bridges to contractors.

Yours very truly,

(Sgd.) D. MACPHERSON,
Acting Chief Engineer.

Hon. S. N. PARENT,

Chairman of the Commissioners of the Transcontinental Railway,
Ottawa.

OTTAWA, 30th January, 1906.

Dear Sir,—

Our Commission will be soon ready to call for tenders on two sections of the line. As work of this importance involves many questions which may give rise to differences of opinion, the Commissioners would like to have your opinion, as Government Consulting Engineer, on the following points, namely:—

1. Plans and profiles are to be submitted for the information of tenderers. Would it be advisable to have the quantities appear on the profiles, or on the contrary should not this source of information be withheld from the contractors.

2. Should tenders be called for the following work as one contract, viz:— the clearing, grubbing, grading, embankment protection, truss, pile and trestle bridging, masonry, concrete culverts, pipe culverts, piers, abutments, road crossings, cattle guards, tracklaying, surfacing, ballasting, water service, stream diversion, turntables, roundhouses, section houses, gates, telegraph lines, including such other work to complete and finish, ready for operation, a single track railway with side tracks, yards, terminal yards, depot grounds, spurs and other necessary and appurtenant tracks, extending from a point in District "F", designated on the said plans of the Commissioners, to a distance of about 245 miles, and from a point in District "B", also designated on the said plans of the Commissioners, to a distance of about 150 miles. The Commissioners furnishing all the rails and fastenings, tie plates, track bolts, spikes, and ties.

Depots, shops and steel bridges we think advisable to ask by separate tenders.

Do you consider advisable to take from the main contract fences, telegraph lines, masonry for steel bridges and ask separate tenders for these works?

Thanking you in advance, I remain,

Yours truly,

(Sgd.) S. N. Parent,
Chairman.

C. Schreiber, Esq.,
Gen'l Consulting Engineer, to the Government,
Ottawa.

Office of the General Consulting Engineer to the Government,
Room No. 150, Western Departmental Building,

Ottawa, Canada, January 31st, 1906.

My dear Sir.

I have to acknowledge the receipt of your communication of yesterday's date, requesting my opinion upon certain points in connection with the calling for tenders for two sections of the Eastern Division of the National Trans-Continental Railway.

In reply to your first question as to the advisability of having the quantities of work to be done appear on the profiles, I would say that, assuming that the profiles show the cuttings and embankments, and the structures to be built at each point, and that the Specification describes the work to be executed, no further information is needed by intending contractors on a schedule price contract. Especially would it be undesirable to exhibit quantities and classification, upon a location which is liable to be revised or changed. The Department of Railways and Canals has, for many years, refrained from exhibiting quantities or classification, as contractors have, subsequently, put forward claims, upon the ground that the details so given had misled them. There is no necessity for supplying such information, and I strongly advise that quantities be not exhibited.

With regard to the question of the extent of the works to be tendered for as one contract, I would say that I am firmly of opinion it would be in the interest of

the speedy prosecution of the work, and of economy in its cost, and therefore in the public interest to include in one contract, upon so large and important piece of work, the telegraph line, clearing, grubbing, road crossings, cattle guards, track-laying, surfacing, ballasting, water service, stream and road diversions, turntable sub-structures, engine houses, section houses, fences, gates, and all works below subgrade or formation level, in fact, all work necessary, when the bridge superstructures are in place, to complete, ready for operation, a single track railway, with side tracks, switches, yards, terminal yards, depot grounds, spurs and other needful appurtenant tracks. In fact, the contract should cover all materials and works, of every description, except the supply and erection of the bridge superstructures and steel turntables, and the supply of steel rails and fastenings, tie plates, track bolts, spikes, ties, which will be furnished by the Commissioners. There is no necessity for the inclusion of the passenger stations, freight houses, warehouses and fuel sheds in the contract, should another course be deemed desirable, and tenders could, in each case, be sought for them as separate and distinct works, apart from the general contract.

As to my reason for advising the inclusion of the telegraph in such general contract, it is this. The contractors are the parties chiefly interested in having the telegraph line in use at an early stage of the work, as it would materially assist them in directing the details of construction and the movement of supplies along their contract works. Hence it is natural to expect that the erection of the telegraph line, if in their hands, would follow close upon the work of clearing, thus ensuring its construction at an early stage.

My reason for recommending the fencing also being so covered, I may say, is that it is the custom in Government contracts to provide that the contractors shall be responsible for all damage done on adjoining land by cattle, etc., trespassing, and it has, therefore, been considered only reasonable that they should be able to protect themselves by the erection of fences along the line where such trespass might be looked for.

Faithfully yours.

(Sgd). COLLINGWOOD SCHREIBER,

Government Chief Engineer of the Western Division of the National Trans-Continental Railway.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 12

Copy of Advertisement for Tenders for General Grading Contracts.

(See Page 19 of Report)

NOTICE TO CONTRACTORS.

Sealed Tenders addressed to the undersigned, marked on the envelope 'Tender for Construction,' will be received at the office of the Commissioners of the Transcontinental Railway, at Ottawa, until twelve o'clock noon of Thursday, the 20th day of August, 1908, for the work required for the construction, in accordance with the plans, profiles and specifications of the Commissioners, of the following sections of the Transcontinental Railway, viz:—

(1) District 'C.'—From a point designated on the plans of the Commissioners near Weymontachene, in the province of Quebec, 196.38 miles west of the north abutment of the Quebec bridge (such point being on the boundary between Districts 'C' and 'D') westerly for a distance of about 107 miles. Date of completion, 31st December, 1910.

(2) District 'C.'—From a point designated on the plans of the Commissioners, about 107 miles west of Weymontachene, in the Province of Quebec, westerly to the end of the Grand Trunk Pacific Railway Company's contract, a distance of about 114.97 miles. Date of completion, 31st December, 1910.

(3) Districts 'D' and 'E.'—From a point designated on the plans of the Commissioners, being at the western end of Fauquier Bros.' Abitibi contract, in the Province of Ontario, in a westerly direction for a distance of about 104.24 miles. Date of completion, 31st December, 1910.

(4) District 'E.'—From a point designated on the plans of the Commissioners, about sixty miles west of the easterly boundary of District 'E,' in the Province of Ontario, easterly to the end of Fauquier Bros. contract, north of Lake Nepigon, a distance of above 100 miles. Date of completion, 31st December, 1910.

(5) Districts 'E' and 'F.'—From a point designated on the plans of the Commissioners, at the western end of Fauquier Bros, contract north of Lake Nepigon, in the Province of Ontario, westerly to a point at or near Dog Lake, a distance of about 126 miles. Date of completion, 1st September, 1910.

(6) District 'F.'—From a point designated on the plans of the Commissioners at or near Dog Lake, in the Province of Ontario, to a point at or about mile 2.6 west of what is known as Peninsula Crossing, by alternative routes as shown on the plans, a distance of about 23.76 miles by the northerly route and 24.13 miles by the southerly route, the selection of the route to be at the option of the Commissioners. Date of completion, 1st September, 1909.

Plans, profiles and specifications may be seen in the office of the Chief Engineer of the Commissioners at Ottawa; also in the offices of the following District Engineers, viz:—John Aylen, Acting District Engineer, North Bay, Ont.; T. S. Armstrong, Nepigon, Ont.; and S. R. Poulin, St. Boniface, Man.

Persons tendering are notified that tenders will not be considered unless made in duplicate, and on the printed forms supplied by the Commissioners.

A separate tender must be submitted for each section.

Tenderers shall not be in any way entitled to rely upon the classification, or any other information given by any person on behalf of the Commissioners; and before submitting any tender, bidders should make a careful examination of the plans, profiles, drawings and specifications, and read the forms to be executed, and fully inform themselves as to the quality of materials, and character of workmanship required; and are understood to accept, and agree to be bound by, the

terms and conditions in the form of contract, specifications, &c., annexed to the form of tender.

Each tender must be signed and sealed by all the parties to the tender, and witnessed, and be accompanied by an accepted cheque on a chartered bank of the Dominion of Canada, payable to the order of the Commissioners of the Transcontinental Railway, as follows:—

For Sec. No.	1,	District	'C'	$150,000
" "	2,	"	'C'	150,000
" "	3,	"	'D' & 'E'	150,000
" "	4,	"	'E'	150,000
" "	5,	"	'E' & 'F'	200,000
" "	6,	"	'F'	100,000

Any person whose tender is accepted shall within ten days after the acceptance thereof furnish such additional approved security as may be required by the Commissioners; sign the contract, specifications, and other documents required to be signed by the said Commissioners; and, in any case of refusal or failure on the part of the party whose tender is accepted to complete and execute a contract with the said Commissioners, and to furnish the additional approved security within ten days after the acceptance of the tender, the said cheque shall be forfeited to the Commissioners as liquidated damages for such refusal or failure and all contract rights acquired by the acceptance of the tender shall be forfeited. The cheques deposited by the parties whose tenders are accepted will be deposited to the credit of the Receiver General of Canada as part of the security for the due and faithful performance of the contract according to its terms. Cheques deposited by parties whose tenders are rejected will be returned within ten days after the signing of the contract.

Attention is called to the following clauses in the form of contract:—

'All mechanics, labourers, or other persons who perform labour for the purposes of the construction of the works hereby contracted for, shall be paid such wages as are generally accepted as current for competent workmen in the district in which the work is being performed, and if there is no current rate in such district, then a fair and reasonable rate; and, in the event of a dispute arising as to what is the current or a fair and reasonable rate, it shall be determined by the Commissioners, whose decision shall be final.'

'This agreement is subject to the regulations now in force, or which may at any time hereafter be in force during the construction of the works hereby contracted for, made under the authority of the Department of Labour, and which are, or shall be, applicable to such works.' (The schedule of minimum wages determined upon by said Department will form part of the contract).

'The contractor shall in connection with the whole of the said work, as far as practicable, use only material, machinery, plant, supplies and rolling stock manufactured or produced in Canada, provided the same can be obtained as cheaply and upon as good terms, in Canada as elsewhere, having regard to quality and price.'

The contractor shall conform to the fire regulations adopted by the Commissioners, and also to the laws and regulations respecting fires in the different provinces wherein the work is being performed.

The right is reserved to reject any or all tenders.

By order,

P. E. RYAN,

Secretary.

The Commissioners of the Transcontinental Railway.

Ottawa, 18th July, 1908.

Newspapers inserting this advertisement without authority from the Commissioners, will not be paid for it.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 13

Copy of Order in Council re Security on Contract.

(See Page 20 of Report)

Copy File No. 14–164782.

Extract from a report of the Committee of the Honourable the Privy Council, approved by His Excellency on the 24th April, 1897.

On a memorandum dated 21st April, 1897, from the Minister of Railways and Canals, representing that whereas on the 24th of December, 1896, an Order in Council was passed amending the Order of the 23rd of March, 1880, in the matter of the amount of security to be required from Contractors for Public Works and increasing such amount from 5% to 10% of the estimated value of the contract, it appears, on further consideration, expedient that such increase should not apply to all contracts alike, but that a distinction should be drawn between those of minor importance and works of magnitude which involve the locking up of considerable sums of money.

The Minister accordingly recommends that the provisions of the said order of the 24th of December, 1896, be so far modified as to make them applicable to contracts the estimated value of which is under $250,000, and that in cases of contracts the estimated value of which is over that amount, the security to be taken thereunder be that contemplated by the previous Order referred to, namely, 5% of such estimated value.

The Committee submit the above recommendation for your Excellency's approval.

JOHN J. McGEE,
Clerk of the Privy Council.

The Honourable the Minister of Railways and Canals.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 15

Letter from H. A. Woods re Classification.

(See Page 64 of Report)

COPY

Montreal, Que., October 7, 1907.

Mr. Hugh D. Lumsden,
Chief Engineer, Eastern Division,
National Transcontinental Railway,
Ottawa, Ont.

Dear Sir:—

Classification of Material, District "B"

At the request of District Engineer Armstrong he was furnished recently with a statement of classification for the heavier work on the above section which were, when given in detail, so different from his expectations that he requested the writer to visit the work.

During the past week we passed over portions of the work from the Batiscan River west for fifteen or twenty miles and later, from Miles 115 to 132.

With reference to the former portion, the classification was given in distances of from 3 to 5 miles, and, as we did not have total quantities of graduation, could not judge with reference to any particular cutting, although percentages for entire distance seemed excessively heavy in both loose and solid rock.

With the latter portion we had detailed percentage for each cut and were greatly surprised at the allowances made for solid and loose rock. In nearly every case, where the cutting was not entirely all ledge, the estimate given for solid rock is double, or more than double, what it should be. In fact, the specifications had been entirely ignored and an excessive allowance made, not by reason of an error in judgment, but, as I understand, by special instructions from the Assistant District Engineer:

Let me give you some illustrations:—

Take the cutting from Stations 5818 to 5826, estimated 71% solid rock and 29% loose rock. Slopes taken out 1½ to 1. Very little ledge in this cut. Some large boulders but a very large percentage is common excavation.

Station 5842 to 5860. Classified 94% solid rock, 6%loose rock. Slopes taken out 1½ to 1. Solid rock over classified at least. 100%.

Station 5866 to 5875. Estimated 80% solid rock, 20% loose rock. No rock in place in this cut. Many large boulders but a large amount of earth.

Station 5882 to 5901. Estimated 78% solid rock, 22% loose rock. A large amount of this cut wasted with slip scrapers and ploughing being done with two horses. There are hundreds of yards of earth here without a stone, large or small.

Station 6030 to 6046. Estimated 40% solid rock, 10% loose rock. This is the large sand cut west of O'Brien's camp. Of the 95,000 yards moved to August 31st in this cut at least 80,000 yards were pure sand.

Station 6071 to 6078. Estimated 99% solid rock, 1% loose rock. Very little solid rock in place. Slopes taken out 1½ to 1.

West of the St. Maurice River.

Station 6391 to 6394. Estimated 46% solid rock, 33% loose rock. Sand cut with few boulders and possibly 1,500 yards ledge in bottom of cut not yet taken out.

Station 6493 to 6504. Estimated 20% solid rock, 49% loose rock. No evidence of any ledge and very few large boulders. Nearly all sand.

Station 6506 to 6512. Estimated 16% solid rock, 44% loose rock. This is purely a sand cut, with very few boulders. Upper slope nearly 100' high, material wasted into river. Certainly not 10% of this should be classified.

Station 6522 to 6548. Estimated 26% solid rock, 49% loose rock. This is borrowed material from the side. Very little solid rock shown, except what was used for blind drains, but some large boulders not placed in embankment.

On account of heavy rains we were not able to go west of station 6600 but we understand that classification is made about as noted above.

In every case where cuttings are not entirely in ledge we find the material over-classified very largely. Mr. Armstrong has been able to visit this work at different times, perhaps quite as often as the Assistant District Engineer. His estimate and my own are not very different as to the amount of classified material and until he received detailed quantities he had no intimation that such heavy classification had been given. In many cases, particularly in sand and gravel cuts, he had supposed that no classification would be given, except perhaps for a few boulders as loose rock.

I am informed also that on the work east of the St. Lawrence River heavy classification is being made in borrowed material where ploughing is done with one team and material moved in slip scrapers.

As before stated, these over-classifications are not made through error in judgment, nor upon the decision of the Resident or Division Engineers, who are fully acquainted with the character of the work, but by arbitrary orders from their superior. To such classification as mentioned above, increasing the cost of the work to such an alarming extent, we most seriously protest and respectfully request that either yourself or the Assistant Chief Engineer visit the work and pass judgment upon the classification as made. Please note that the percentages given above indicate the work done to August 31st. We are not advised what the September estimate will show.

Yours truly,
Sgd. H. A. Woods,
Assistant Chief Engineer.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 16

Mr. Lumsden's Blueprint showing Assembled Rock.

(See Page 65 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY.
SOLID ROCK EXCAVATION.

Rock in Ledges

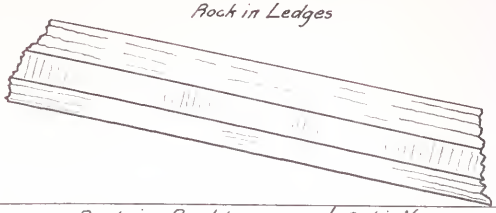
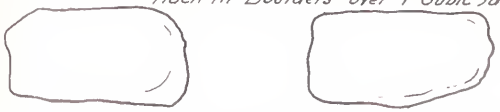


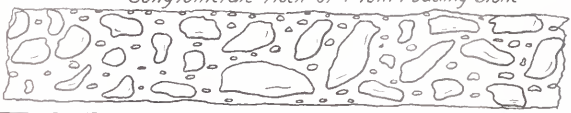
Diagram No 1

Rock in Boulders over 1 Cubic Yard



No 2

Conglomerate Rock or Plum Pudding Stone



No 3

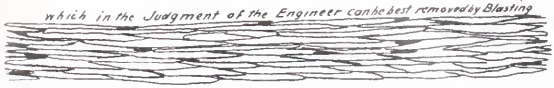
Detached Ledge Rock in Mass over 1 Cubic Yard

No 4

Rock in Masses of over 1 Cubic Yard (Assembled Rock)
which in the Judgment of the Engineer can be best removed by Blasting

No 5

Shale Rock
which in the Judgment of the Engineer can be best removed by Blasting



No 6

No 1. Is a mere matter of measurement by the Engineer
No 2. Is a mere matter of measurement by Rock Measurers
No 3. Is a mere matter of measurement by the Engineers
No 4 Is a mere matter of measurement by Rock Measurers
Nos 5 & 6 To form a judgment as to whether or not it is best removed by Blasting, the Chief Engineer must view the work in progress or leave it to be decided by the Engineer in charge, whose duty it is to frequently visit the work during its operation and be governed thereby & act accordingly.

Hoyle D. Symmes Chief Engineer
Ottawa Feb 27/07
Jan 16/08

3608 D/2

N.T.R. Investigating Commission Exhibit No. 16

N. T. R.

INVESTIGATING COMMISSION

Exhibit 18

Statement of Overbreak.

(See Page 69 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY

STATEMENT SHOWING COST OF OVERBREAK, AS ORIGINALLY RETURNED, ALL YARDAGE AT SOLID ROCK PRICES.

District	Contract No.	Cu. Yds.	Rate	Cost
"B"	7	102,462	1.45	$148,569 90
	8	71,960	1.45	104,342 00
	9	84,845	1.50	127,267 50
	10	335,690	1.50	503,535 00
	11	80,246	1.65	132,405 90
	12	162,027	1.60	259,243 20
	Total.....	.....	.....	$1,275,363 50
"F"	19	258,541	1.48	382,640 68
	20	14,622	1.45	21,201 90
	21	1,415,081	1.70	2,405,637 70
	Total.....	.....	.....	$2,809,480 28
	Grand Total .	.....	.....	$4,084,843 78

NATIONAL TRANSCONTINENTAL RAILWAY INVESTIGATING COMMISSION

STATEMENT SHOWING SOLID ROCK RETURNS IN LEDGE ROCK CUTTINGS DISTRICTS B. & F. AS MODIFIED BY ARBITRATORS AND SUBSEQUENT REVISIONS.

District	Contract No.	Solid Rock inside slopes C. Yds.	Overbreak C. Yds.	Percentage of Over B.	Overbreak returned as								Total Value of Overbreak	Remarks
					Solid rock	Rate	Loose rock	Rate	Train Fill	Rate	Other Class	Rate		
B	7	341,588	102,462	30	80,303	1.45	20,453	.50			1,706	1.50	$ 129,224.85	
	8	207,909	71,960	34·6	55,920	1.45	9,508	.65	9,806	.45			91,674.72	
	9	203,296	84,845	41·7	84,015	1.50	830	.50					126,437.50	Large
	10	706,862	335,690	47·4	272,156	1.50	107,39	.50	77,506	.55	1,125	1.75	458,200.55	quantities
	11	314,485	80,246	25·5	70,308	1.65	2,658	.60	10,919	.50			123,062.50	of shale
	12	595,201	162,027	27·2	120,624	1.60	41,095	.57			308	.22	216,490.31	rock on
	Totals.....	2,369,341	837,230	35·3	683,326		85,278		98,231		3,139		$1,145,090.43	these
F	19	1,015,631	258,541	25·4	256,692	1.48			4,763	.55			381,523.81	Contracts.
	20	58,805	14,622	24·4	14,622	1.45							21,201.90	
	21	3,590,270	1,415,081	39·4	1,029,643	1.70	56,408	.60	332,720	.52	29,545	.30	1,975,715.80	
	Totals.....	4,664,706	1,688,244	36·1	1,300,957		56,408		337,483		29,545		2,378,441.51	
Grand	Totals.....	7,031,047	2,525,474	35·9	1,984,283		141,686		435·714		32,684		3,523,531.94	

NATIONAL TRANSCONTINENTAL RAILWAY.

STATEMENT SHOWING WHAT WOULD HAVE BEEN COST OF OVERBREAK IN LEDGE ROCK CUTTINGS IF RETURNED ALLOWING A QUANTITY EQUAL TO 20% OF PRISM QUANTITIES, DIVIDED INTO 70% SOLID AND 30% LOOSE ROCK. AVOIDABLE OVERBREAK RETURNED AS TRAIN FILL, ALLOWING 1½ TIMES YARDAGE OF SOLID ROCK.

District	Contract No.	Inside Slopes Cu. Yds.	Overbreak Cu. Yds.	20% Unavoidable returned as				Balance		Total Value of Overbreak
				70% Solid Rock	@	30% Loose Rock	@	Train Fill	@	
"B"	7	341,588	102,462	47,822	$1.45	30,742	.50	51,217	.40	$ 104,999 70
	8	207,909	71,960	29,107	1.45	18,712	.65	45,567	.45	74,873 10
	9	203,296	84,845	28,461	1.50	18,297	.50	66,279	.55	88,293 45
	10	706,862	335,690	98,960	1.50	63,618	.50	291,477	.55	340,561 35
	11	314,485	80,246	44,028	1.65	28,303	.60	26,023	.50	92,639 50
	12	595,201	162,027	83,328	1.60	53,568	.57	65,480	.40	190,050 56
Totals.....		2,369,341	837,230	331,806		213,240		546,043		$891,417 66
"F"	19	1,015,631	258,541	142,188	1.48	91,407	.85	83,122	.55	333,851 29
	20	58,805	14,622	8,233	1.45	5,291	.55	4,290	.65	17,636 90
	21	3,590,270	1,415,081	502,638	1.70	323,124	.60	1,066,540	.52	1,602,759 50
Totals.....		4,664,706	1,688,244	653,059		419,823		1,153,952		$ 1,954,247 69
Grand Total....		7,034,047	2,525,474	984,865		633,063		1,699,995		$ 2,845,665 35

N. T. R.

INVESTIGATING COMMISSION

Exhibit 19

Correspondence in connection with use of Momentum Grades.

(See Page 71 of Report)

August 9th, 1905.

"H. A. Woods, Esq.,
"Asst. Chief Engineer,
"Grand Trunk Pacific Railway,
"Montreal, P. Q.

"Dear Sir:—

"Would you kindly send me a set of your speed and distance diagrams for "calculating momentum grades, giving details of weights of engines used.

Yours very truly,
(Signed) D. MacPherson.

"Montreal, Que., Aug. 14th., 1905.

"Mr. D. MacPherson,
"Assistant Chief Engineer,
"Transcontinental Railway,
"Ottawa, Ont.

"Dear Sir,—

"Replying to your letter of Aug. 9th., asking for a set of our speed and dis- "tance diagrams for calculating momentum grades. I beg to say that we have "not considered momentum grades, in any way, in our located lines, and I question "the utility of doing so on grades as low as we are using.

"For details of weight and engines used, I have to say that we propose to "use the new Government Specifications for Bridges, using the "Heavy" class "of engines. This I understand gives the weight of engine and tender 355,440.

Yours truly,
(Signed) H. A. Woods,
Asst. Chief Engineer.

Nov., 20th, 1905.

"H. D. Lumsden, Esq.,
"Chief Engineer,
"Ottawa.

"Dear Sir:—

"Attached is correspondence I have had with our District Engineers and "with the Assistant Chief Engineer of the Grand Trunk Pacific Railway, on the "subject of virtual grades.

"You will see that some of our Engineers are in favor of using same in certain "places and some are not. Mr. Woods is not in favor of using them. They are, "of course, only suitable for undulating country and not for long stretches of "country on maximum grades.

"Engineering has been described as the art of making a dollar earn the most "money and a judicious use of virtual grades at points where the Locomotive "Engineer has a chance to "take a run at the grade," would undoubtedly save "money in construction and admit of the line being operated with maximum

"virtual grades of 0.4 and 0.6 though the actual grades would appear on the "profile as steeper. Of course if we have actual grades of 0.4 in locations where "the engine can get a run at them, they can be operated as virtual grades of less "slope and the haulage capacity of the engine will be greater than on a virtual "grade of 0.4. Will you kindly let me have your ruling early as to whether or "not we shall use virtual grades where possible. Please return fyle.

Yours very truly,
(Sgd.) D. MacPherson,
Asst. Chief Engineer.

File 3737.

"D. MacPherson, Esq.,
"Assistant Chief Engineer,

"Dear Sir:—

"In reply to your letter of the 20th inst. *re* actual and virtual grades. I "am certainly of the opinion that we must adhere to actual grades so far as our "construction is concerned, and all District Engineers should be so instructed. "Should any exceptional cases arise they should be submitted to this office, but "you must bear in mind they must be approved by the Grand Trunk Pacific "Railway Company before they can be adopted. I return herewith all corres- "pondence.

Yours truly,
(Sgd.) Hugh D. Lumsden.

"Enclos.

Ottawa, November 22nd, 1905.

"Guy C. Dunn, Esq.,
A. E. Doucet, Esq.,
A. N. Molesworth, Esq.,
S. R. Poulin, Esq.,
C. E. Perry, Esq.,
A. E. Hodgins, Esq.,

DISTRICT ENGINEER.

"Dear Sir:—

Re VIRTUAL GRADES

"Referring to previous correspondence on the subject of virtual grades I "have gone into the matter with all the District Engineers, and with the Assistant "Chief Engineer of the Grand Trunk Pacific Railway, after which I submitted "the correspondence to the Chief Engineer, who has given his ruling that we "must adhere to actual grades. You will please be governed accordingly. Should "any exceptional case arise where it seems impossible to get the actual grade, "with reasonable cost, such exceptional cases will be gone into on their merits, "but, on account of the wording of the Act, it may be necessary to submit such "cases for the approval of the Grand Trunk Pacific Company.

Yours truly,
(Sgd.) D. MacPherson,
Asst. Chief Engineer.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 20

Correspondence in connection with Train Filling.

(See Page 75 of Report)

Ottawa, March 8th, 1906.

To the Commissioners of the Transcontinental Railway,
Ottawa.

Sirs:—

I beg to suggest to the Commissioners that before the acceptance of any tender by them, the contractor should understand that his price for common excavation includes all train hauled material for the making up of embankments, and if the contractor finds it to his advantage to construct temporary trestles to enable him to make up such embankments by train hauled material, he may do so on obtaining the consent in writing of the engineers, but the contractor's price for common excavation must be understood to cover the cost of such temporary trestles, and the filling in of same by train hauled material, and such filling shall be completed as soon as practicable. No overhaul will be allowed for train hauled material.

The contractor must also understand that all temporary trestles erected for his own convenience in hauling by teams or dump cars (other than as stated under heading of 'Temporary Bridge or Haulway' in Clause 17 of the General Specifications) shall be erected at his own expense, and that in the schedule of prices to be paid for the various items for material and work finished or performed, the prices given by him in his tender are to be taken and considered to be the prices for such material in the finished work, except in cases of Items 10 and 21, and that the ties under 76, 77, and 78 of the said schedule are to be finished by the Commissioners and that his price for tracklaying is to cover the cost of handling and putting in all such ties.

Yours obedient servant,
(Sgd.) H. D. Lumsden.

(Memo on Mr. Lumsden's file in connection with letter of March 8th, 1906, to Commissioners.)

This letter is written for the information of the Commissioners and is instigated by the fact that several supposed intending tenderers have asked the question as to payment for temporary trestles and overhaul.

It is a common practice in railway construction through a rough and broken country where suitable material is scarce and costly to obtain that embankments might in the first instances be made narrow and low and afterwards filled out or made up to the full subgrade by train haul made from the best available pits, and in some cases it is preferable to put in temporary trestle rather than raise the track as the work progresses.

Contractors tendering, who had not been accustomed to such a country, may make their price with the idea that they would be paid 1c. per 100 feet, over the 500 ft. of free haul (provided for in the General Specifications, Clause 17) for all train hauled material, and also for the erection of temporary trestles. As for the latter part of the letter it is only to be certain before signing any contract that the tenderer understands that the prices given by him are for the material in the work and not for the material only.

(Sgd.) H. D. Lumsden,
Ottawa, March 8th, 1906.

KENORA, June 9th, 1906.

H. D. LUMSDEN, Esq.,

Dear Sir:—

Mr. McArthur has raised the question who will pay for temporary trestles if train filling is ordered in heavy fills. *He is very anxious to do some train filling west of the C. P. R. crossing in place of permanent trestles.* He has not put in a price for temporary trestles and claims that his price per cubic yard for train filling does not include anything but the loading and off loading material for banks from flat cars.

Yours truly,
(Sgd). A. E. HODGINS,
District Engineer.

OTTAWA, June 12th, 1906.

A. E. HODGINS, Esq.,
District Engineer,
Kenora, Ont.

Dear Sir:—

In reply to yours of the 9th instant *re* Mr. McArthur' raising the question as to who should pay for trestles where train filling was ordered in heavy filling, I may say that owing to the short time for the completion of this work, it was not the intention that the present contractors should be called upon to make up any *very heavy fills*, the material for which had to be hauled by train, but that we should put in standard trestle in such places. Of course, if the contractor prefers to make up a fill by train hauled material rather than put in our standard trestle, he can do so with your approval, but in such cases he must provide the necessary temporary trestle at his own cost (except under Clause 17, headed 'Temporary Bridge or Haulway'). We have no special price for train hauled material but only for train hauled surfacing by which is meant that where the track is laid before ballasted it may be found advisable to haul a few car loads of sand or gravel in order to save the rails from permanent injury. I may also say that it is not the intention to use rock borrow except only when an order in writing has been given from this office.

Yours truly,
(Sgd.) H. D. LUMSDEN.

November, 5th, 1906.

H. D. LUMSDEN, Esq.,
Chief Engineer,
Transcontinental Railway.

Dear Sir:—

I have received the following letter from Mr. M. P. Davis.—'Would you please instruct your engineers to give us bills of timber for temporary trestles required for fills at stations 237 to 261, 870 to 890, 1028 to 1033, 1515 to 1524, 1840 to 1865, 1935 to 1970, 2040 to 2055, 2465 to 2515. It is important that we get this information at the earliest possible date so that the material may be delivered during the winter months, and oblige,

(Sgd.) M. P. DAVIS.'

Now to supply this information opens up the question of temporary trestles, train hauled material, and you will, of course, recollect that no decision has as yet been come to with regard to this matter. As I pointed out with regard to this matter before it would have been easy to have included train hauled material in our specifications, but as matters stand now it seems to me that we are at the contractors' mercy and that we will have to make the best we can of a bad bargain. I will await your further order before supplying this information.

Yours truly.
(Sgd.) A. E. DOUCET,
District Engineer.

November 12th, 1906.

H. D. LUMSDEN, Esq.,
Chief Engineer,
Transcontinental Railway.

Dear Sir:—

I enclose herewith a letter which I have just received from Messrs. M. P. and J. T. Davis, concerning the price of train hauled material and for which you suggested that they should submit a price to the Commissioners.

Yours truly,
(Sgd.) A. E. DOUCET.

File 4134.

December 4th, 1906.

A. E. Doucet, Esq.,
District Engineer,
Quebec, P. Q.

Dear Sir:—

In regard to Mr. Davis' letter to you, dated the 12th ulto. attached, I may say that Clause 17 of our General Specifications only refers to material under the heading of grading, which the contractor handles entirely with his own equipment, appliances and labour, prior to the Commissioner's track being laid, and should not be interpreted to cover cases where the contractor makes use of the rails, fastenings and ties furnished by the Commissioners, the latter also paying for the track laying. As to points at which suitable material for the making up of embankments is not obtainable within reasonable reach, and they are made up by train haul, it is found that where borrow pits of sand, gravel, or easily worked material are to be found, either on the line of railway or within short distances thereof, and within a few miles of the site of such embankments, that such embankments, up to say twenty-five feet in height, can be most economically constructed by, where practicable, dropping the grades at the end of the embankments and raising them by train to their full width and height, the cost of such raising of grades by train haul would be amply covered by an addition of 10c per yard to the ordinary earth work price. Where it is impracticable to do this, the additional cost per yard of material in embankments to cover the cost of the erection of temporary trestle; in embankments from ten to twenty-five feet in height an addition of 22c, and in embankments from twenty-five to forty-five feet in height an addition of 10c. per yard to the ordinary earth work price will amply cover this, and for greater heights, up to say sixty foot, 7½c. per yard added to the original earth work price. I may say that in general it is more profitable to contractors, where borrow of good sand, gravel, or easily worked material can be obtained within a few miles that can be loaded on cars by steam shovel, and unloaded by plough or unloaded, to make up fills in this way (when the track has been found for the contractor) at their original price, than to do so by men and horses where the haul exceeds the five hundred foot limit, and especially in this case where the ordinary material to be moved, by men or teams, is clay or stiff material. Mr. Davis makes an exception of material hauled from cuts, and asks 1c. per yard per 100 ft. on all such material. This should not be allowed if it is wasted and our track is used to take out such material. Mr. Davis also asks 2c. per yard per mile for haul over seven miles; this is just double what I consider it is worth. My opinion is that if the present contractors are allowed an addition to their ordinary earth work price (21c. per yard) of 15c. per yard for all train hauled material to make up embankments (other than ballast) such addition to cover all cost of lifting track, putting in temporary trestle and filling same up, to a haul of five miles, and an addition of 1c. per yard per mile for haul over five miles, such an arrangement would be a fair and equitable one as between the Commissioners and the contractors, it being understood that this extra price of 15c per yard does not apply to material wasted from cuttings or to material to make up embankments hauled by train for a less distance than 2,000 feet.

Yours truly,
(Sgd.) Hugh D. Lumsden.

Enclos.

January 22nd, 1907.

To the Commissioners of the Transcontinental Railway,
Ottawa.

Sirs:—

On the 14th December last at a meeting in Quebec with Messrs. Davis Bros. and Messrs. Macdonell and O'Brien, the contractors for the 150 miles from the Quebec Bridge westerly, the Chairman, Mr. Doucet and Messrs. Woods and Armstrong, the Grand Trunk Pacific Supervising Engineers being also present, the question of haul over 2,600 feet and temporary trestle was taken up, the contractors claiming 65c. per cubic yard and to cover such trestle and any length of haul over 2,600 ft. After a long discussion I eventually consented to a price of 55c. per cubic yard, which in my opinion is a very good one. I also allowed the 20c. per lineal foot for piles delivered as well as 40c. per foot for piles driven, having found in making a comparison of the tenders that had been so computed except where specially mentioned otherwise. As this arrangement may increase the cost of construction I beg to call your attention to my letter of March 8th last, and to strongly recommend that before other contracts are let the specifications may be so amended as to make a number of the clauses clear, saving future trouble and tend to the economical construction of the line.

Your obedient servant,
(Sgd.) H. D. Lumsden.

March 21st, 1907.

A. E. Hodgins, Esq.,
District Engineer,
Kenora, Ont.

Dear Sir:—

The many inquiries made by you for permission to use rock borrow in fills leads me to send you a copy of our revised General Specifications, approved by the Government, and on which contracts have already been awarded. You will note in this on page 41, Clause 224x, a specification for train hauled material including temporary trestle. I may say that out of nine tenders lately received for such work, the average price was 51⅔c. varying from a minimum of 45c. to a maximum of 60c.

I think it would be well for you to interview Mr. McArthur and see at what rate you could arrange with him for similar work on his contract. This would enable him to use round timber trestle or piles, in a number of places where under such present conditions standard timber trestle would be required, but of course you will have to be the judge as to where he could use such so as not to cause too great a delay in the completion of the work. I should like you to take this matter up at once and submit here for approval any offer Mr. McArthur may make as soon as possible.

(Sgd.) H. D. Lumsden.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 21

Correspondence in connection with the use of Wooden Trestles.

(See Page 74 of Report)

Jan. 9th, 1907.

H. A. Woods, Esq.,
Asst. Chief Engineer,
Grand Trunk Pacific Railway,
Montreal, P.Q.

Dear Sir,—

I have been endeavouring to settle the question of using standard timber trestles in a number of large fills as talked over with you, the intention being to allow these trestles to stand as long as they are safe, then to put in the permanent waterway where required and fill by train. I am told, however, that the Grand Trunk Pacific, who will then be operating the road, could charge anything they liked for such permanent waterway and filling. Though this seems to me absurd it would strengthen my position if I could have a letter from Mr. Kelliher and yourself stating that the maximum price that the G. T. P. would charge for the construction of the permanent bridge and waterway would not in any case exceed the price for similar work now, or hereafter, to be paid to the contractors on the section that such work may be situated, and the maximum price for train filling such trestles would not exceed say 25c. per cub. yard measured in borrow pits, or such other rate as you may consider fair.

Yours truly,

(Sgd.) Hugh D. Lumsden.

Montreal, Que., Jan. 11th, 1907.

Mr. Hugh D. Lumsden,
Chief Engineer, Transcontinental Ry.,
Ottawa, Ont.

Dear Sir:—

I have yours of the 9th inst., in which you state that you are endeavouring to settle the question of using standard timber trestles in a number of large fills, the intention being to allow these trestles to stand as long as they are safe and then put in permanent water-ways required and fill by train. In order to make an intelligent estimate of where this class of work would be economical and good engineering practice to substitute for steel structures and solid embankments you requested that Mr. Kelliher and myself would state a maximum price that the Grand Trunk Pacific would charge for the construction of permanent bridge and water-ways if the work was turned over by the Commission before it was completed. In reply to same I have to say that, after a conference with Vice-President Morse and Chief Engineer Kelliher, they both state that the price you mentioned, 25 cents per cubic yard, measured in borrow pits, for train hauled filling and that the price for permanent bridge and water-ways would not exceed the price for similar work now or hereafter to be paid to the contractors, was eminently fair. Vice-President Morse desired me to say that, without fixing a price upon this train hauled material, that the price would not exceed 25 cents per cubic yard. It would seem to me that the above answers your inquiry fully and I trust it may be of some service

to you in giving instructions to your staff as to where this class of work should be placed.

I may say further that the use of standard timber trestles has been allowed by the Government on the Western Division and we see no reason why we should not accept the same character of work from the Transcontinental Commission.

Yours truly,
(Sgd.) H. A. WOODS,
Assistant Chief Engineer.

File-6190 Jan. 12th, 1907.

Dear Sir,—

RE WORK COVERED BY TENDERS NOW BEING CALLED FOR.

In order to insure the economical construction of the line in your district it may be found advisable to make use of standard timber trestle in many places where suitable material is not available in the vicinity for the making up of embankments, or where it may be impracticable during construction to put in the permanent structures required. If you have not already provided for such, will you please at once furnish me with a memo of points in your District where standard trestle may be required, giving approximate quantities in trestle and deductions to be made from common excavation covering same. Should tenderers enquire tell them that such trestles may be used.

Yours truly,
(Sgd.) HUGH D. LUMSDEN.

District Engineers: "A", "B," "C" and "D."

No. 10248. QUEBEC, 15th Jany, 1907.

HUGH D. LUMSDEN, Esq.,
Chief Engineer,
Ottawa.

Dear Sir:—

Acknowledging your circular of January 12th, file 6190. We will not need any standard timber trestles in my district, as suitable material can be found in the vicinity for the making up of embankments.

Yours very truly.
(Sgd.) A. E. DOUCET,
District Engineer.

No. 9974.

St. John, N. B., January 17th, 1907.

Hugh D. Lumsden, Esq.,
Chief Engineer N. T. C. Ry.,
Ottawa, Ont.

Dear Sir:—

I beg to acknowledge receipt of your letter of the 16th inst., *re* work covered by tenders now being called for. Since receiving same I have gone carefully over our profiles and do not consider it would be advisable or economical to make use of standard timber trestles on either of the contracts. On Contract No. 1 there are two or three places where it would be advisable to use timber if material was difficult to procure, but we can make the fills up from side work to a height of ten or twelve feet and I feel confident of getting enough stuff to make up the balance from the cuts at each end. On Contract No. 2 there are one or two places where it was questionable if it would not be advisable to use 60 ft. trestles from grade as per suggestion made by Mr. Uniacke, but although the material in this vicinity is rock I think we can get sufficient earth to make up these fills, and I cannot figure out that there is very much economy in putting in sixty feet of timber to save a small end abutment.

Yours truly,

(Sgd.) Guy C. Dunn,,
District Engineer

File 6190.

Jan. 19th, 1907.

Guy C. Dunn, Esq.,
District Engineer,
St. John, N. B.

Dear Sir:—

Yours of the 17th inst. *re* use of standard timber trestle received. My Object in writing you was to call your attention to the fact that there are many cases in crossings of ravines, say 35 to 70 feet in depth and several hundred feet in length, whereby putting in standard timber trestle now, and when such becomes unsafe (say in 8 or 9 years) filling it by train at a cost of say 25c. or less, per yard, is in the end more economical than putting in expensive water-way, say 20 foot arch culvert, and filling at contractors' prices now, or putting in steel viaduct on concrete foundations. It is unquestionably more expensive to build concrete structures now than when the material can be landed at the site by train, and large railway corporations with all modern appliances can do trestle filling at their convenience at a less cost than contractors. As to steel viaducts; constant renewal of deck and painting of steel makes a considerable sum when capitalized and added to the first cost, whereas an embankment and say arch or box culverts may be said to be permanent. There is also a considerable saving of interest on the difference between the cost of permanent water-way and filling now, and the substitution of trestle for say 8 or 9 years.

I want to provide in our estimates for the work about to be let the use of timber in such places should we determine to make use of it, deducting an equivalent amount of earth.

Please let me hear from you again on this subject.

Yours truly,
(Sgd.) HUGH D. LUMSDEN.

File 6190.

Jan. 19th, 1907.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs:—

As I have about completed the estimates for the several sections on which we are now asking tenders, I should like to have your instructions as to whether I am to provide for the erection of standard timber trestle, in such places as I am satisfied that the final cost of its erection now and after a lapse of eight or nine years of construction of a permanent water-way and filling such trestle by train is less than the making up of such permanent water-way and embankment now. As the question of the subsequent cost of the construction of permanent water-ways and train filling was an important one and certain to be raised I wrote to Mr. H. A. Woods, Assistant Chief Engineer of the G. T. P., and attach a copy of his reply. I am satisfied that at a number of places, especially on the more inaccessible sections, it will be found that a considerable saving can be effected, both in time and money, by the use of this mode of construction. The only objection that I can see is the possibility of some of these trestles being destroyed by fire before being filled in, but by the use of cars in the clearing and keeping cleared of the ground at the sites of such trestles, and the maintaining of barrels of water at intervals on such trestles during the summer months this danger can be minimized.

No. 9996.

ST. JOHN, N. B., January 21st, 1907.

HUGH D. LUMSDEN, Esq.,
Chief Engineer N. T. C. Ry.,
Ottawa, Ont.

Dear Sir:—

I beg to acknowledge receipt of your letter of the 19th inst., in regard to standard timber trestles for temporary purposes. I will go into this question more carefully, make some comparative estimates, and advise you in regard to same as soon as possible.

Yours truly,
(Sgd.) GUY C. DUNN,
District Engineer.

North Bay, January 22nd, 1907.

Mr. H. D. Lumsden,
Chief Engineer,
Ottawa, Ont.

Dear Sir:—

I beg to enclose a tableau giving an estimate of the cost of Permanent Structures at the different points at the Eastern Section of my district, together with the cost of embankment which would be saved by putting a wooden structure of a certain length at each of the respective places. I also give the difference in cost of Permanent Structures and Wooden Trestle which would amount to about $416,515.00. I have also a column at 4% interest on the money not expended for seven years, and the probable cost of the Permanent Structure after seven years. On the last the difference would be simply in the cost of the concrete or masonry. There is a column showing the probable total saving and also the surplus cost by using wooden structures. I would not advice the using of wooden structures at every one of the points where saving is shown, for instance at the Circle River, Low Bush River and Mistongo River, I think should have Permanent Structures at once, as the Mistongo River is a viaduct which is not taken into consideration in this matter, and probably it will depend on the character of the material at the end of the viaduct to see whether it would necessitate some 400 or 500 feet of wooden approaches. All structures which are under an embankment of less than 25 feet would cost less to have a Permanent Structure at once than to wait until the track is there.

I think that this table will put you in a position to judge very quickly of the places where we will gain by putting temporary wooden structures. I did not compound the interest on the amount saved. The compounding of which, amounting to about one-third of the interest, would be offsetted by the necessary repairs to the wooden structures during the seven years of their existence.

Yours truly,
(Sgd.) S. R. Poulin,
District Engineer, "D".

File 6190 Feb. 4th, 1907.

Dear Sir:—

Re use of Standard Timber Trestles on the Eastern Division. I received some time ago a letter from your Assistant Chief Engineer Mr. H. A. Woods, copy of which I attach, and I should like very much to have this letter confirmed by yourself and Mr. Kelliher.

Yours truly,

Enclos.

Frank W. Morse, Esq.,

Vice President Grand Trunk Pacific Ry.
Montreal, P. Q.

En route Montreal to Ottawa,
February 13th. 1907.

1072
MR. HUGH D. LUMSDEN,
Chief Engineer, Trans-Con. Ry. Commission,
Ottawa, Ont.

Dear Sir:—

I have yours of the 4th. inst. subject standard timber trestles on the Eastern Division, and in reply thereto will say that I fully endorse and approve, and will be governed by Mr. Woods' letter of January 11th to you, on this subject.

Yours truly,
(*Sgd.*) FRANK W. MORSE,
Vice President & Gen. Manager.

OTTAWA, March 1st, 1907.

HON. S. N. PARENT,
Chairman.

Dear Sir,

In reply to yours of the 26th ult., accompanied with a copy from Mr. H. A. Woods, Asst. Chief Engineer of the G. T. R. wherein he states that the price for train hauled material to fill in wooden trestles by the Co., would not exceed 25 cents per cubic yard. To this you ask my opinion if Mr. Wood's letter could legally be considered binding on their part. In my opinion it would not legally bind the Company.

To make this proposition binding would require a regular agreement applying to each particular point where the work is to be done, the whole to be confirmed by a resolution of the Board of Directors.

I am, Sir,
Your obedient servant,
(*Sgd.*) H. ATKINSON,
Law Clerk.

OTTAWA, March 1st, 1907.

HUGH D. LUMSDEN, ESQ.,
Chief Engineer.

Re Filling in Timber Trestles.

Dear Sir:—

After reading the letter of the 13th ult., to you from F. W. Morse, Esq., General Manager of the G. T. P. stating that he fully endorsed and approved of Mr. H. A. Woods letter of Jan'y 11th last on the above subject. I am to say

it does not change my opinion as expressed in my letter to the Hon. Mr. Parent of this date.

I am, Sir,
Your obedient servant,
(*Sgd.*) H. ATKINSON,
Law Clerk.

H. A. /B.

File 6190.

March 1st. 1907.

H. A. WOODS, ESQ.,
Assistant Chief Engineer, G. T. R.
Montreal, P. Q.

Dear Sir,

Referring to our correspondence *re* use of Standard Timber Trestle in construction of the Eastern Division, I beg to hand you herewith copy of two letters from our Law Clerk in view of which opinions it will be incumbent on your Company to make formal application for the use of such structures in particular cases, supported by resolution by the Board of your Directors along the lines indicated in Mr. Atkinson's letters, such resolutions binding your Company to the maximum price of the subsequent filling of the structure, and for the construction of any permanent structure that may be necessitated thereby; and to replace any such structures as may be destroyed by fire after the road has been taken over by the Company; and in the event of destruction by fire of any such structures before the road has been taken over by your Company, agreeing that the cost of replacement will be included in "Cost of Construction."

Yours truly,
(*Sgd.*) HUGH D. LUMSDEN.

Enclos.

MONTREAL, QUE., March 4, 1907.

MR. HUGH D. LUMSDEN,
Chief Engineer, Nat. Transcontinental Ry.,
Ottawa, Ont.

Dear Sir:—

I beg to acknowledge the receipt of your favor of March 1st, together with copies of two letters from Mr. H. Atkinson, Law Clerk, *re* use of standard timber trestles, construction of the Eastern Division. I have forwarded same to our General Manager for his action in the matter.

I may say, however, that to me it seems singular that an agreement of this kind should have to be made in each particular case and approved by the Board of Directors of this Company.

No action of approval by our Board is necessary in regard to our own work. The class of structure and kind of work is entirely within the jurisdiction of our Chief Engineer, if approved by the General Manager.

Yours truly,

(*Sgd.*) H. A. Woods,
Assistant Chief Engineer.

Ottawa, April 2nd, 1907.

H. Atkinson, Esq.,
Law Clerk, Transcontinental Commission,
Ottawa, Ont.

Dear Sir:—

Standard Timber Trestles for Eastern Division.

Referring to this subject I have seen your several opinions relating thereto and have to say that I quite endorse the same. In accordance with the view expressed by you I have drawn a By-Law to be passed by the Directors of the Grand Trunk Pacific Railway, in pursuance of which a formal contract may be entered into along the lines suggested. Kindly say if the draft By-Law meets your approval, and I will have it passed at once, to be followed by the preparation of the necessary formal contract.

Yours truly,
D'Arcy Tate,
Asst. Solicitor.

Encl.

BY-LAW No.....

Whereas, it is proposed by the Commissioners of the Transcontinental Railway to erect standard timber trestles in a number of large fills, on the Eastern Division, the intention being to allow these trestles to stand as long as they are safe, and afterwards put in permanent waterways, and fill by trains.

And Whereas, the Grand Trunk Pacific Railway Company are agreeable to what is proposed in this respect, and are willing to do the filling hereafter required at 25 cents per cubic yard measured in borrow pits for train hauled filling, and to construct the necessary permanent bridges and waterways at a price not exceeding the maximum price now, or hereafter paid by the Commissioners to Contractors for similar work.

Therefore, it is

Moved by

Seconded by,

That the Vice President be, and he is hereby authorized to execute a normal contract with the Commissioners of the Transcontinental Railway in respect of the erection of standard timber trestles by the said Commissioners, wherever in the opinion of the Chief Engineer of the Transcontinental Railway Commission and the Chief Engineer of the Grand Trunk Pacific Railway Company it is consistent with economical and good engineering practice so to do, such timber trestles to be ultimately filled in by the Grand Trunk Pacific Railway Company for the Commissioners at the price of 25 cents per cubic yard measured in borrow pits for train hauled filling, and the permanent bridge and the waterways to be

constructed by the Grand Trunk Pacific Railway Company for the Commissioners at a price not exceeding the maximum price now, or hereafter paid by the Commissioners to Contractors for similar work.

OTTAWA, April 3rd, 1907.

HUGH D. LUMSDEN, Esq.,
Chief Engineer.

Dear Sir:—

STANDARD TIMBER TRESTLES FOR EASTERN DIVISION

Herewith please find copy of a letter received from D'Arcy Tate, Esq., Asst. Solicitor, G. T. P. Railway, and also a draft By-Law relative to the above subject.

Would you kindly examine the By-law, and have it submitted to the Board, and return to me and oblige.

I am, Sir,
Your obedient servant,
(Sgd.) H. ATKINSON,
Law Clerk.

H.A./B.

OTTAWA, April 5th, 1907.

HUGH D. LUMSDEN, Esq.,
Chief Engineer.

Dear Sir:—

STANDARD TIMBER TRESTLES FOR EASTERN DIVISION

Herewith I beg to hand you the proposed By-Law to be passed by the Directors of the G. T. P. concerning the above as corrected by you, and which is more in conformity with the letter from Mr. Woods to you of January 11th last, than the By-Law which was submitted by Mr. Tate to me.

I am, Sir,
Your obedient servant,
(Sgd.) H. ATKINSON,
Law Clerk.

H.A./B.

OTTAWA, May 14th, 1907.

HUGH D. LUMSDEN, Esq.,
Chief Engineer.

Dear Sir:—

I beg to hand you herewith copy of a certified copy of resolution of the Executive Committee of the Grand Trunk Pacific Railway relating to the erection of standard timber trestles on the Eastern Division; also copy of a certified copy of a resolution of said Executive Committee approving specifications for:

(1) Steel rails, marked "a"—being the specifications according to which the Dominion Iron & Steel Co., is now manufacturing rails for this Commission.

(2) Steel rails, marked "b"—being the specifications in accordance with which The Algoma Steel Company is now manufacturing rails for this Commission.
(3) Standard specifications for steel splice bars.
(4) Specifications for track bolts and nuts.
(5) Specifications for track spikes.

Yours truly,

2 enclos. (Sgd.) P. E. RYAN.

EXTRACT from Minutes of a Meeting of the Executive Committee of the Grand Trunk Pacific Railway Company, held in the President's Room No. 301 of the General Offices, McGill Street, Montreal, Thursday, May 9th, 1907, at Eleven o'clock, A.M.

PRESENT:

CHAS. M. HAYS, Esq., Chairman.
FRANK W. MORSE, Esq.,
WM. WAINWRIGHT, Esq.

Attended by Henry Philips, Secretary.

The following resolution *re* the erection of standard timber trestles on the Eastern Division was submitted:—

WHEREAS it may be found expedient by the Commissioners of the Transcontinental Railway to erect standard timber trestles in a number of large fills, on the Eastern Division, the intention being to allow these trestles to stand as long as they are safe and afterwards put in permanent waterways, and fill by train.

AND WHEREAS the Grand Trunk Pacific Railway Company approves of the erection of such Timber Trestles, and are willing to do the filling hereafter required at a price not to exceed 25c. per cubic yard measured in borrow pits for train hauled filling, and to construct the necessary permanent bridges and waterways at a price not to exceed the price now, or hereafter paid by the Commissioners to Contractors for similar work on the Section where the work may be required.

NOW THEREFORE upon motion of Mr. Frank W. Morse, seconded by Mr. Wm. Wainwright, it was unanimously

RESOLVED that the Vice-President be and he is hereby authorized to execute a formal contract with the Commissioners of the Transcontinental Railway in respect of the erection of standard timber trestles by the said Commissioners, wherever in the opinion of the Chief Engineer of the Transcontinental Railway Commission and the Chief Engineer of the Grand Trunk Pacific Railway Company, it is consistent with economical and good engineering practice so to do, such timber trestles to be ultimately filled in by the Grand Trunk Pacific Railway Company for the Commissioners at a price not to exceed 25c. per cubic yard measured in borrow pits for train hauled filling and the permanent bridge and the waterways to be constructed by the Grand Trunk Pacific Railway Company for the Commissioners at a price not exceeding the price now, or hereafter paid by the Commissioners to Contractors for similar work on the section where such work may be required.

Carried.

Certified a true copy,
(Sgd.) HENRY PHILLIPS,
Secretary.

(SEAL)

N. T. R.

INVESTIGATING COMMISSION

Exhibit 22

Statement showing Saving which might have been made by use of Wooden Trestles.

(See Page 78 of Report)

NATIONAL TRANSCONTINENTAL RAILWAY.

STATEMENT SHOWING SAVING WHICH MIGHT HAVE BEEN EFFECTED BY THE CONSTRUCTION OF WOODEN TRESTLES AT 150 LOCATIONS BETWEEN MONCTON AND WINNIPEG

SUMMARY.

District	Number of Locations	Present Fill and Structure				Timber Trestles				Saving at end of Seven Years	To make permanent in 7 Years			Ultimate Saving
		Cost of Fill	Cost of Structure	Total Cost	Total Cost & Int. at 4% for 7 Years	Length	Height	First Cost	Cost & Int. at 4% for 7 Years		Fill at 25 cts.	Structure	Total	
A	26			$1,840,865	$2,420,733			533,967	702,160	1,718,573			789,287	929,286
B	17			1,231,944	1,751,503			309,297	538,222	1,213,281			896,684	316,597
C & D	14			501,441	659,394			111,332	146,401	512,993			323,020	189,973
E	11			604,678	795,147			171,200	225,121	570,026			354,546	215,480
F	62			2,253,885	2,963,810			781,134	1,023,285	1,940,525			996,843	943,682
Totals...	150			$7,554,758	$10,065,944			$2,259,372	$3,098,660	$6,967,284			$4,020,057	$2,947,227

N. T. R.

INVESTIGATING COMMISSION

Exhibit 23

Statement of Rock Borrow.

(See Page 79 of Report)

Rock Borrow

The following figures show the cubic yards of solid rock excavated from solid rock, borrow pits or from the sides of cuttings which was used to construct embankments for which cheaper material was not available, but which need not have been used had wooden trestles been installed.

District.	*Cubic Yards of Solid Rock.*	*Cost.*
A.	743,976	$ 835,077.00
B.	256,947	410,867,25
F.	852,881	1,397,368.25
Total.....	$1,853.804	$2,643,312.50

704,654 cubic yards of the solid rock borrow used on District "A" was paid for at a special price of $1.10¼ per cubic yard under an arrangement with the contractors and by approval of an Order in Council.

The balance of the yardage on all three districts was paid for at the regular contract price for solid rock, varying from $1.45 to $1.70 per cubic yard.

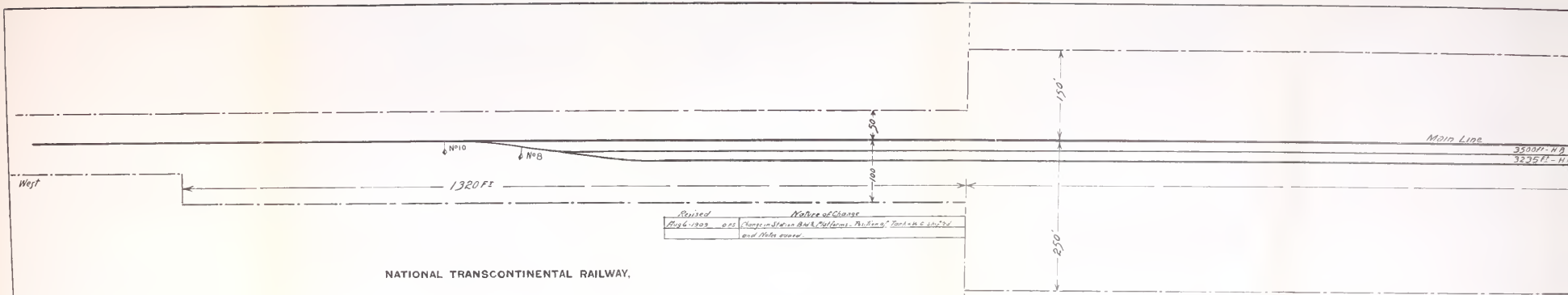
N. T. R.

INVESTIGATING COMMISSION

Exhibit 24

Standard Siding Plan.

(See Page 102 of Report)



Revised	Nature of Change
Aug 6-1903 O.R.S.	Change in Station Bldg, Platforms - Position of Tank + H.C. Lay Out and Notes added

NATIONAL TRANSCONTINENTAL RAILWAY,

— EASTERN DIVISION —

— Standard Station Yard —

Scale. 100' = 1".

Chairman

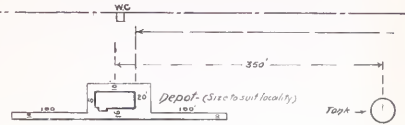
Chief Engineer

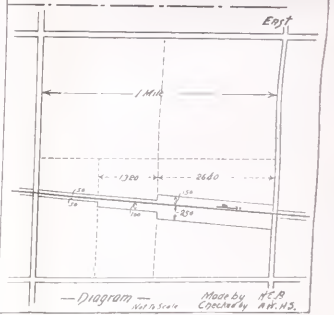
Ottawa July. 6. 1906.

Notes

— This Layout may be reversed when necessary by placing Station 800 FT. east of Pub
and Sidings to correspond extending Eastward from Station should more suitable ground o
regions make some more convenient —
— If advisable Station Buildings may be placed on south side, and Sidings on north side, but Sta
— The distances between tracks shown on plan are for Prairie country —
— In rougher rocky country, distances between Main Line and Sidings, and between Sidings may be 16 FT —
— If Main Line, on tangent in one direction & on Curve in other direction, place Tank on side of Station approached
— Length of Platform to be varied to suit Locality

Drng. No 87





cessary by placing Station 800 Ft. east of Public Road
ward from Station should more suitable ground or other

nd on south side, and Sidings on north side, but Stations should be on North side unless good & special reasons to the contrary —
e for Prairie Country —
Line and Sidings), one between Sidings, not 14 Ft. —
in other direction, place Tank on side of Station approached by Curve, so that Trains on Main Line may be seen as far as possible from Office window —
hy

Note
1- East of Lake Superior Junction only one Siding to be provided at normal Stations
2- In unsurveyed Territory the Station Grounds to be 3300 Ft long 132 Ft in width on North side & 250 Ft on South side of Centre and must be shewn to suit Topography, and Conditions
3- Where country is divided into mile square Sections, the idea is to run the maximum width of Station Ground, half way across the Section, and the 50 Ft. outside ordinary Right of Way across half the adjoining Quarter-Section, as shewn on Diagram, even if these distances vary from those shewn on Plan.

N .T. R.

INVESTIGATING COMMISSION

Exhibit 25

Correspondence in connection with use of Light Rails in Sidings.

(See Page 104 of Report)

GRAND TRUNK PACIFIC RAILWAY,

MONTREAL, QUE., March 5th, 1906.

MR. D. MACPHERSON,
Ass't Chief Engineer, Transcontinental Ry.,
Ottawa, Ont.

Dear Sir:—

Replying to your letter of March 2nd, subject use of 80 lb. rails on main line and sidings. I have to say that we do not expect to use the 80 lb. rail on either passing tracks or terminal yards. We shall probably draw largely from the Grand Trunk Railway for these purposes, using either a re-rolled rail of about 70lb. per yard, or a 67 lb. rail. As the Transcontinental Commission will have no such opportunity to secure lighter rails, it may be well to use the 80 lb. rail entirely. This will be a matter for the Commissioners to decide upon. I may say, however, that it will be satisfactory to our Manager if they decide to use the 80 lb. rail throughout.

Yours truly,

(*Sgd.*) H. A. WOODS,
Ass't Chief Engineer.

AT WINNIPEG, March 20th, 1908.

Dear Mr. Parent:—

We are in our side tracks west, outside the lead rails to a point beyond the frog, using 65 to 70 lb. rail. We are doing this for the purpose of reducing cost. As I have always told you and your colleagues, we would be willing for you to adopt any practice which we had inaugurated.

I write you to suggest that it would be well to order a lighter rail for side tracks, as it would lessen our capital expenditure.

Yours truly,

(*Sgd.*) FRANK W. MORSE.

HON. S. N. PARENT,
Chairman, Transcontinental Ry. Com.,
Ottawa, Ont.

April 8th, 1910.

B. B. KELLIHER, ESQ.
Chief Engineer, G. T. P. Ry.,
Winnipeg, Man.

Dear Sir:—

The other day in conversation with your Vice-President and General Manager, he suggested that we should use 60 lbs. rails in yards and sidings, instead of 80 lbs. as that was the practice west of Winnipeg. Since then I have had an estimate prepared which shows that about $142,000.00 can be saved by substituting 60 lbs. rails for 80 lbs. in all yards and sidings for which rails have not been ordered

or laid. I would be glad to have a letter from you stating that, in your opinion, it would be advisable to use 60 lbs. rails in yards and sidings in future instead of 80 lbs. rails. On receipt of your letter I will recommend to the Commission that this plan be adopted and the above saving effected thereby.

Yours truly,
(*Sgd.*) GORDON GRANT,
Chief Engineer.

OTTAWA, April 15th, 1908.

FRANK W. MORSE, ESQ.,
Vice President and General Manager,
Grand Trunk Pacific Railway,
Montreal, P. Q.

Dear Sir:—

Your letter of the 20th March ultimo to the Chairman suggesting that a lighter rail than an 80 lb. rail be used in sidings on the Eastern Division was duly received and submitted to the Board.

In reply, I am directed to say that our Chief Engineer reports that the question of using a lighter rail in the sidings than in the main line was taken up in March 1906 with the Assistant Chief Engineer of your Company, who replied under date of March 5th 1906 that either a re-rolled rail of about 70 lbs. per yard or a 67 lb. rail would probably be used in sidings on the Western Division, as you would be in a position to draw largely from the Grand Trunk Railway for this purpose; but that as the Transcontinental Commission would have no such opportunity to secure lighter rails, it might be well to use the 80 lb. rail entirely. It would be satisfactory to you, be stated, if the Commissioners decided to use the 80 lb. rail throughout. In consequence of this, contracts were awarded for 80 lb. rails for the main line, sidings and yards of the sections of the Eastern Division under contract previously to March last.

If it be now desired that a change be made, the Commissioners think that such should be requested by a resolution of your Board.

Our Chief Engineer thinks it an advantage to have a uniform rail throughout, and states that the substitution of a 70 lb. for an 80 lb. rail in the sidings would effect a saving for the whole Eastern Division of only about $120,000.

Yours very truly,
(*Sgd.*) P. E. RYAN.

April 19th, 1910.

MR. GORDON GRANT,
Chief Engineer, N. T. Rly.,
Ottawa, Ont.

Dear Sir:—

Referring to your letter of the 8th inst., File 10,601, relative to use of 60 lb. rails in yards and sidings instead of 80 lb.

Your suggestion to substitute 60 lb. rails for 80 lb. in all yards and sidings

for which rails have not been ordered or laid is fully approved by our Vice-President and General Manager and myself, and I would be glad if you will recommend the adoption of same to the Commission.

Yours truly,

(*Sgd.*) B. B. KELLIHER,
Chief Engineer.
B.

OTTAWA, April 25th, 1910.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs,—

Re use of 60 ***lb.*** *rails instead of* 80 ***lb.*** *rails in sidings and yards.*

I attach herewith a copy of a letter dated the 8th of April which I wrote to Chief Engineer Kelliher of the Grand Trunk Pacific Railway, stating that, in conversation the other day with their General Manager Mr. Chamberlain, he suggested that 60 lb. rails should be used in both yards and sidings.

I may say in regard to this that I have always been of that opinion and discussed the matter several times with both the ex-Chief Engineer and the Assistant Chief Engineer, both of whom were opposed to the use of 60 lb. rails in yards and sidings. Why 80 lb. rails were used in yards and sidings I cannot say, as it is not the practice on other roads to use the same weight of rails in sidings as they do in the main line. Therefore, if we can effect a saving of about $150,000.00 by substituting 60 lb. rails in yards and sidings, I recommend that this be done.

I attach copy of a letter I have received from Mr. Kelliher in answer to mine of the 8th instant, in which he states that the Vice-President and General Manager as well as himself would be glad if I would recommend the adoption of the 60 lb. rails to the Commission. I would be glad to have your instructions in the matter.

Your obedient servant,
(Sgd.) GORDON GRANT,
Chief Engineer.

Enc.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 27

Engineer's Estimate prepared in connection with Contract No. 8.
(See Page 34 of Report)

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

DISTRICT "B" – Section 3 –

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

– Engineer's Estimate –

FROM 0 MILE TO 150 MILE [redacted] East of Quebec Bridge

Item No	DESCRIPTION OF WORK	Measure	Total Measure	Rate	Amount	Total Amount	REMARKS
0	Right of way	acre					
1	Clearing, including close cutting	acre	1262	40.	50480		
2	Trees cut down outside right-of-way	each		1.			
3	Grubbing	acre	121	150.	18150		
4	Solid Rock	c.y	918381	1 75	1607167		
5	Loose rock & other materials (section 35 Spec 1	c.y	395645	70	276952		
6	Common excavation	c.y	3091210	28	865539		
7	Excavations in foundations, no coffer dams	c.y	14268	70	9988		
8	Excavation of foundations, within coffer dams	c.y		2 50			
9	Solid rock, all materials per cub. yd. per 100 ft haul per 300 ft haul	c.y	22845600	01	228456		
10	Piling – as ordered as per Engineer's bill	lin ft	35360	.15	5304		
11	Sheeting	lin ft	35360	.25	8840		
12	Short piling, per M ft B M		150000	60.	9000		
13	Waterhold timber, per M ft B M			75.			
14	Cross-logging 1 ft deep with 18 in. handmark	acre		900			
15	12" B. Drains	lin ft		50			
16	Longitudinal stone drains	lin ft		1.50			
17	Extra excavation (all materials)	c.y		6			
18	Extra filling with stone	c.y	7500	1 50	11250		
19	Hand trimming	c.y	1724	3	5172		
20	Overhaul beyond [illegible]	c.y	7500	2	15000		
21	Extra excavation, Ballast and cuttings	c.y	15000	1	15000		
22	Timber, [illegible]	lin ft	15000	.25	3750		
23	Timber, hewn, per M ft B M			40			
24	Timber, sawn, per M ft B M, except stringers			45			
25	Bridges and Piers – for pile trestles, per M ft B M			45			
26	Sawn timber in guard rails and badges per M ft B M			45			
27	Timber, [illegible] per M ft B M			60			
28	Timber, hewn in culverts, 8 ins. x 12 ins. 10 ins. x 12 ins. and 12 ins. x 12 ins. per M ft B M		355000	45	15975		
29	Plank in highway and private road crossings per M ft B M		843000	40	33720		
30	Timber, hewn in piles for culverts, per M ft B M			40			
31	Timber, sawn in piles for culverts, per M ft B M			45			
32	Timber in cribs, [illegible]			45			
33	Timber in caissons, M ft B M			1 20			
34	Vitrified pipe culverts, 15 inches diam	lin ft		1 40			
35	do 18 inches diam	lin ft		1 55			
36	Reinforced concrete pipe, 14 inches diam	lin ft	1275	1 70	2167		
38	do 18 inches diam	lin ft	1826	2 50	4565		
40	do 24 inches diam	lin ft	32	3 75	120		
41	do 30 inches diam	lin ft	3025	5 50	16637		
42	do 36 inches diam	lin ft		11			
44	do 48 inches diam	lin ft		16			
46	do 60 inches diam	lin ft		10			
47	8 inches Agricultural under tile drains	lin ft		3 75			
48	Cast iron pipe culverts, 18 inches diam	lin ft	1500	5	7500		
51	do 24 inches diam	lin ft		6			
52	do 30 inches diam	lin ft.		8			
53	do 36 inches diam	lin ft		12			
54	do 48 inches diam	lin ft		20			
55	do 60 inches diam	lin ft					
56	Concrete, facing mixture 1-2½-4 in. thick including forms	c.y	1091	18.	19638		
58	Concrete, 1-2-4 coping course 6 in. thick including forms	c.y	968	15	14520		
60	Concrete, [illegible] including forms	c.y		12			
61	Concrete, [illegible] including forms	c.y	38769	10.	387690		
62	Concrete, 1-2½-5 in arch culverts, including forms and centres	c.y	27203	13	353639		
63	Concrete, 1-2-4 in arch culverts, including forms and centres	c.y	1420	11.	15620		
64	Concrete, 1-2-4 in arch culverts, including forms	c.y		11.			
65	Concrete, 1-2-4 in ordinary foundations, including forms	c.y	1500	9	13500		
66	Concrete, 1-2-4 in walls of building, including forms	c.y	750	10	7500		
67	[illegible] class masonry	c.y		15			
68	Second class masonry	c.y		11			
	[illegible] forward				4022839		

(226)

Form 89A, 500 revised, 15-1-07.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

DISTRICT "B" — Section 3 —

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

FROM 0 MILE TO 150 MILE *Continued)* East of Quebec Bridge

DESCRIPTION OF WORK	Measure	Total Measure	Rate	Amount	Total Amount	REMARKS
Tracks Brought Forward				4022839		
	c. y.	2615	9.	23535		
	c. y.		6.			
			20.			
	acre	150	400.	60000		
	mile	16	400.	6400		
	c. y.	15000	.40	6000		
	c. y.	1415000	.45	636750		
			.01			
			.20			
	c. y.	498000	.50	249000		
	cord	398400	.50	199200		
	each	99600	.45	44820		
		198000	40.	7920		
	each	58	10	580		
	each	266	3.	798		
	each	42	400.	16800		
	each	2	6500.	13000		
	each		200			
	cord	96000	120	115200		
	each	2072	7	14504		
			75			
			85			
			13			
			15			
			25			
		150	225.	33750		
		7	3500.	24500		
	each	1	5000.	5000		
	each	1	2000	2000		
			5.			
	lbs	32500	.05	2030		
	lbs	5500	07	3107		
	lbs	1680	06	101		
	lbs		.04½	1240		
	millions	116	25.	2900		
	each		1.50			
	ton 2,000 lbs		50			
	lbs		05			
TOTALS				5491974		

Hugh L. Cameron
Chf Engr

8th Feb. 07

D. MacPherson
Asst. Chf Engr.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 28

Letter from Mr. D. MacPherson in connection with Contract No. 8.

(See Page 35 of Report)

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

D. MACPHERSON,
Assistant to the Chairman.

OTTAWA, December 26th, 1912.

GEO. LYNCH STAUNTON, ESQ.,
Chairman, Investigating Commission Transcontinental, Railway,
Ottawa.

Dear Sir:—

Replying to questions in yours of 20th inst:—

1. What date was the first engineer's estimate of the various quantities of work and material, necessary for the completion of this contract, drawn up?

Ans. The first engineer's estimate was made up about January 18th, 1907.

2. How many copies of this estimate were made?

Ans. Am unable to say; but it was made out on schedule Form 89, from which blue print copies could be made.

3. Did any member or officer of the Commission request to be supplied with a copy of this estimate?

Ans. The Chairman, on 21st January, asked for a statement of the engineers' estimated quantities for each item on the schedule Form 89, covering the five sections for which tenders closed on February 14th.

4. If such a request was made, was it complied with, and, if so, to whom and upon what date were copies of this estimate handed?

Ans. Yes; Chairman was, on 23rd January, handed a copy of above mentioned schedules, printed and bound in the general specifications and form of tender, on which the engineers' estimated quantities were filled in.

5. Upon what date was the second engineer's estimate made of the amount of work involved on the mileage covered by contract No. 8?

Ans. A second estimate was made only in so far as to add some estimated quantities of trestle timber which had been inadvertently omitted. I have no record of the exact date this was done, but am absolutely positive it was done before tenders closed on 14th February.

6. Upon what date were you handed the lists of prices contained in the various tenders for this work so that they might be monied out in accordance with the quantities contained in the engineers' estimates?

Ans. On the afternoon of 15th February.

7. In what items did the second engineer's estimate differ from the first engineer's estimate?

Ans. Items 24, 26 and 27 of general contract schedule, Form 89, had zero quantities in first estimate, and in the revised form the following estimated quantities of timber, in board measure, were inserted:

ITEM 42	ITEM 26	ITEM 27
732 190	166 600	192 780

8. Did you then, having received copies of the various tenders, proceed to money out these tenders according to the second engineer's estimate, and, if not, why?

Ans. Yes; but before the results were formally submitted to the Board by the Chief Engineer, the Chairman when he discovered the timber items, 24, 26 and 27, he ordered the quantities changed back to zero; which was done.

9. Was there a new engineer's estimate compiled in your office after you had received copies of the various tenders, and, if so, under whose instructions was this done?

Ans. No new estimates made, except to strike out timber quantities, as explained in answer to question 8.

10. Upon what date was this estimate signed, and upon what dates do your records show that Mr. Lumsden was absent in Winnipeg?

Ans. Estimate signed by Mr. Lumsden and myself, February 18th. The former left for Winnipeg on the 5th of February and returned February 13th.

You will find from the official Minute Book, that neither Mr. Lumsden nor I were present at the Board Meetings on February 14th and 15th when these tenders were being opened and dealt with, though we were both in the office, and one or the other was supposed to attend all Board Meetings. It was officially intimated to the Chief that he was not to attend the Board Meetings on the aforesaid dates. At the opening of such important tenders it would appear that the Chief Engineer should have been present.

The corrections made in estimated quantities by the Engineering Department before opening of tenders, was merely routine duty, and needs no defence.

The deliberate order to change estimated quantities after tenders were opened and moneyed out, and it was evident that such change would eliminate the legitimately lowest tender, seems to call for considerable defence.

Yours truly,

D. MacPherson,

Ass't to the Chairman.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 29

Original Sheets in moneying out T. D. MacArthur's Contract.

(See Page 57 of Report)

N° 1 McArthur Construction C° Ltd of Canada
N° 2 The Pacific Construction C°
N° 3 The Grand Trunk Pacific Railway C°
N° 4. J. W. McArthur

6000000 / 300,000,00

THE NATIONAL TRANSCONTINENTAL RAILWAY.

DISTRICT "F"

Comparative Estimate shewing cost of 244 Miles of the T.C.Ry. From Penninsula Crossing to near Winnipeg based upon First Location Quantities and revised prices for certain minor items after consultation with the District Engineers and cost of same work calculated on prices submitted in Tenders 1, 2, 3 & 4

Note:— Our prices for Turntables & Track Scales include Superstructures only erected

Item N°	Description of Work	Unit	Quantity	Engineer's Estimate Rate	Engineer's Estimate Amount	Tender N°1. Rate	Tender N°1. Amount	Tender N°2 Rate	Tender N°2 Amount	Tender N°3 Rate	Tender N°3 Amount	Tender N°4 Rate	Tender N°4 Amount	Remarks.
1	Clearing	Acre	2013	30 00	90390 00	60 00	180780 00	45 00	135585 00	60 90	180750 00	40 00	120520 00	
2	Trees cut down outside right of way	each	2980	50	1100 00	1 00	2200 00	1 00	2,200 00	1 00	2,200 00	50	1,100 00	
3	Grubbing	acre	236	200 00	28320 00	250 00	59,000 00	100 00	23,600 00	100 00	23,600 00	75 00	17,700 00	
4	Solid Rock	C.Y.	3694 884	1 85	6832404 80	1 58	6,749,111 68	1 65	6094934 40	1 78	6579478 00	1 70	6283 771 20	
5	Loose Rock & other materials [see 25 per	C.Y.	733 454	70	513,417 80	68	498 748 72	55	403,399 70	50	366,727 00	60	440072 40	
6	Common Excavation	C.y.	11,283 247	30	3369,974 10	35	3,951,636 45	29	3357, 641 63	32	3594 639 00	30	3369974 10	
"	Excavation Foundations no coffer dams	C.Y.	553	70	385 00	2 50	1375 00	75	412 50	1 00	550 00	55	303 50	
5	Excavation Foundations within coffer dams	C.Y.	770	1 60	1200 00	5 00	3,750 00	1 50	1,126 00	10 00	7 700 00	3 00	2 250 00	
9	Overhaul	C.Y.	22687 200	01	226972 60	01	226972 60	01	226 972 60		226 972 60	0	226,972 60	
10	Piling delivered on ter Engineers, R.I.	Lin Ft	282 554	15	42,383 25	35	98 894 25	24	67,578 570 00	22	62 162 10	25	70638 75	
11	Piling driven	Lin Ft	258 360	25	64 715 00	65	168 259 00	35	90 601 00	24	62 126 40	Driving only 15	38 950 00	
12	Sheet piling	per M.F.B.M.	74,000	40 00	3960 00	65 00	4810 00	40 00	2 960 00	50 00	3 700 00	75 00	5 550 00	
13	Cross Lagging 11 deep	acre	674	1,500 00	101 700 00	5000 00	337 000 00	1000 00	67,400 00	2500 00	160,500 00	500 00	339000 00	
15	Pole drains	Lin Ft	4907	25	1225 00	50	2450 00	1 00	4900 00	20	980 00	25	225 00	*
16	French Stone drains	Lin Ft	2833	50	1417 50	1 00	2 835 00	1 00	2,335 00	35	9912 25	1 25	3543 75	
"	Earth Culverts	C.y.	664	6 00	6 984 00	7 00	7,448 00	8 00	8,512 00	8 00	8 512 00	2 75	2926 00	
8	Crib & filling with stone	C.y.	950	1 50	1,425 00	2 50	2375 00	2 50	2,375 00	1 25	1 187 50	2 75	2612 50	
19	Hand laid rip rap	C.y.	12224	3 00	36672 00	5 00	61,120 00	3 50	42 791 00	2 50	30,560 00	2 75	33624 50	
20	Pierre perdu rip-rap	C.y.	3950	1 50	5925 00	3 50	13,825 00	2 50	9 625 00	1 25	4 812 50	75	2 962 50	
21	Filling cut reserved stone	C.y.	450	1 00	550 00	1 00	550 00	1 00	550 00	55	467 50	1 00	550 00	*
22	Round logs in Cribs	Lin Ft	10 661	25	2625 00	35	3 675 00	30	3,150 00	20	2100 00	20	2,100 00	
24	Framed Trestles except Stringers	[illegible] M Ft B.M.	9635 793	45 00	433,610 68	60 00	578 147 58	38 00	366,160 13	45 00	433,610 69	35 00	337 252 75	N°4 in 21 sections
25	Caps railings & Braces for Pile Trestles	per M Ft B.M.	225 500	45 00	10,147 50	60 00	13,530 00	39 00	9 569 00	45 00	10,147 50	32 00	7 216 00	N°4 " "
27	Stringers	per M Ft B.M.	2362 948	60 00	141 778 08	80 00	189 035 84	38 00	125 812 78	45 00	149,632 50	42 00	138,724 66	N°4 " " B.C. =
29	Plank in Highway Private Road Crossings	per M Ft B.M.	56 250	30 00	1687 50	40 00	2 250 00	25 00	1,406 25	30 00	1,968 75	30 00	1687 50	
30	Timber rest quality for culverts	per M Ft B.M.	50,000	40 00	2,000 00	40 00	2,000 00	30 00	1,500 00	40 00	2,000 00	30 00	1500 00	
34	Vitrified pipe culverts 18" dia	Lin Ft	2342	1 70	3 981 40	3 25	7,611 50	2 25	5,044 50	1 60	3 581 20	1 45	3 256 90	
38	Reinforced Concrete Pipe 18" dia	Lin ft	972	50	3 [illegible] 00	2 25	1,962 00	2 15	1,874 80	1 50	1,308 00	1 50	1,308 00	*
40	" 24 dia	Lin ft	296	1 [illegible]	673 20	3 00	1 [illegible] 00	2 45	726 20	2 25	673 20	2 25	673 20	*
58	Concrete two ay mixture 24 Thick	C.y.	14 [illegible]	15 00	215 350 00	25 00	359 250 00	20 00	28 200 00	20 00	28,200 00	15 00	21 150 00	Tender N°3 — These items marked cost + 10% figures used are those used in Engineers estimate.
59	Concrete coping course 6 Thick	C.y.	470	14 00	6580 00	18 00	8 460 00	12 00	5640 00	15 00	7 050 00	15 00	7 050 00	
60	Concrete 1 2 5	C.y.	1002	12 00	12000 00	14 00	14 [illegible] 00	2 00	2,000 00	11 00	11 000 00	12 00	12 000 00	*
61	" 1 3 6	C.y.	264	10 00	2640 00	13 50	3 [illegible] 00	12 00	3168 00	11 00	2,904 00	15 00	3,960 00	
62	" in arch Culverts 1 2 5	C.y.	265	13 00	3446 3 00	16 00	42 416 00	12 00	31 812 00	13 00	34 469 00	12 00	31 843 00	
63	" 1 2 4	C.y.	7049	11 00	77,539 00	16 50	116 [illegible] 00	12 00	84 588 00	12 00	84 533 00	15 00	105 735 00	
64	" Bar 1 2 4	C.y.	212	11 00	2332 00	14 50	3 [illegible] 00	12 00	2544 00	12 00	2,544 00	11 00	2332 00	
65	" ordinary foundations 1 2 5	C.y.	2700	9 00	24300 00	10 00	27,000 00	11 00	29,700 00	11 00	29,700 00	13 00	35100 00	
66	" walls of Building 1 2 4	C.y.	[illegible]	14 00	24,000 00	12 00	25,000 00	11 00	22,000 00	12 00	24 000 00	12 00	24 000 00	
67	First class masonry	C.y.	16250	16 00	260,000 00	18 00	292,500 00	18 00	292 500 00	18 00	292,500 00	18 00	292 500 00	
68	Second Class masonry	C.y.	35773	14 00	500,822 00	20 00	715,460 00	15 00	536,595 00	15 00	536,595 00	13 00	465 049 00	
70	Dry masonry	C.y.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5 00	11,240 00	5 00	11,240 00	4 00	9 000 00	
71	Masonry in Arch Ring	C.y.	500	24 00	12000 00	40 00	20 000 00	24 00	12,000 00	24 00	12,000 00	18 00	9 000 00	
72	Track laying on Main Lines	Mile	150	500 00	75,000 00	1200 00	180,000 00	500 00	140,000 00	300 00	84,000 00	500 00	140 000 00	
73	" Yards at Terminals	Mile	20	500 00	10,000 00	1500 00	30 000 00	500 00	14,000 00	300 00	8,400 00	500 00	14 000 00	
74	Train hauled Surfacing	C.y.	2 640 [illegible]		66 [illegible] 00		3 [illegible] 00		1,320 00		792 00		396 00	
75	Ballasting	C.y.	400 000		80 000 00		100 000 00		50 000 00		40,000 00		20 000 00	
79	Public Road signs	each	440		[illegible] 00		[illegible] 00		1,760 00		440 00		440 00	
80	Wire roads whistle posts & road signs	each	1 24	3 00	3372 00	12 00	5 [illegible] 00	6 00	2,640 00	7 50	3,300 00	12 00	5 280 00	
81	Semaphores at Stations	each	34	550 00	3,700 00	200 00	6800 00	3 00	3 372 00	3 50	3,944 00	45 00	730 00	
82	Interlocking appliances & levers	each	1	4,000 00	6,000 00	4500 00	6800 00	400 00	3,600 00	550 00	13 750 00	1500 00	13 500 00	
83	Each additional lever	each	5	200 00	1,000 00	500 00	4500 00	4500 00	4 500 00	6000 00	6,000 00	1000 00	6 000 00	Tender N°3. These items marked cost + 10% figures used are those used in Engineers Estimate.
84	Fencing	rod	50,720	1 00	50720 00	1 50	70 080 00	500 00	2,500 00	200 00	1,000 00	200 00	1,000 00	
85	Gates	each	320	6 00	1920 00	8 00	10 000 00	1 15	58,328 00	1 60	81 152 00	1 05	63256 00	
90	Drainage Tunnels 4 cy per ft	Lin ft	250	25 00	6250 00	40 00	10 000 00	5 00	1,600 00	7 00	2240 00	8 00	2560 00	
91	Telegraph Line	Mile	244	2 [illegible] 0	43 [illegible] 00	500 00	22,000 00	25 00	6250 00	30 00	7500 00	25 00	6250 00	
92	Water Tanks 50m gals	each	3	4000 00	12,000 00	4500 00	13 500 00	200 00	48,800 00	250 00	61,000 00	225 00	54,900 00	
93	Turntables	each	8	3000 00	24000 00	4500 00	36 000 00	5000 00	68 000 00	2500 00	32,500 00	2200 00	28,600 00	
94	Track Scales	each	2	1000 00	2,000 00	2500 00	5 000 00	5000 00	15 000 00	3250 00	9 750 00	4500 00	9000 00	
96	Iron in Drift bolts	lb	830788		50 00		5344 68	4,500 00	9,660 00	2500 00	5,000 00	1000 00	2,000 00	
97	" Screw bolts	lb	476 890		00	25 00	25 [illegible] 00	06	5,344 68	06	4453 90	06	5730 07	
98	Forged or cut Spikes	lb	[illegible]		00	25 00	7,524 65	07	33376 00	05	4455 90	05	33,376 00	
99	Cast iron washers & Separators	lb	315 666		03	03	9469 30	06	4,605 58	06	7800 65	07	33,376 00	Note — In Tender N°4 for items marked thus * no prices were given for purpose of Comparison the figures used are those used in Engineers Estimate
100	Cattle guards 3 Sections	each	441	15 00	6600 00	5 00	5783 00	06	13,939 60	05	15,788 00	06	18,939 60	
101	Cast iron pile shoes	each	200	50	00 00	5 00	1000 00	3 00	600 00	1 75	350 00	6 50	1300 00	
					13756623 34		17048 813 10		13,028,763 35		13991860.42		13,010,338 92	

4/260
308A
March 26th 1906

N.E.R. Investigation Commission Exhibit N°

308A 4/260

THE NATIONAL TRANSCONTINENTAL RAILWAY

Form 89

DISTRICT 9

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

PARTY FROM 0 MILE TO 7½ MILE

QUANTITIES

DESCRIPTION OF WORK	Measure	Miles from 0 to 7½	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Total Measure	Rate	Amount	Total Amount	REMARKS
Right of way	acre.													
Clearing	acre	14												
Trees cut down	each	31												
Grubbing	acre	55												
Rock	c y	70												
[illegible]	c y	60												
[illegible]	c y	30												
Excavation [illegible]	c y	55												
Excavation [illegible]	c y	5												
Overhaul [illegible]		61												
Piling delivered	lin ft	75												
Piling driven	lin ft	5												
Street [illegible]		75												
Wakefield [illegible]		100												
Cross [illegible]		600												
Tube drain	each	2												
Trench [illegible]	ft	25												
Trench [illegible]		275												
Culvert [illegible]		2												
Head [illegible]		2												
[illegible]		1												
[illegible]		1												
Insert [illegible]	lin ft	20												
[illegible]		5												
[illegible]														
[illegible]		1												
[illegible]														
Cedar timber in culverts, 8 ins. x 12 ins., 10 ins.		22												
[illegible]		1												
[illegible] and private road crossings		3												
[illegible]		3												
[illegible] 12 inches [illegible]	lin ft	63												
12 inches diam	lin ft													
[illegible] 10 ins	lin ft													
[illegible] 10 ins	lin ft	103												
[illegible]	lin ft													
[illegible]	lin ft													
[illegible]	lin ft													
[illegible]	lin ft													
[illegible]														
[illegible]														
[illegible]

Sheet 2

THE NATIONAL TRANSCONTINENTAL RAILWAY

Form 89

DISTRICT 8

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

PARTY FROM 0 MILE TO 24 MILE (Continued)

DESCRIPTION OF WORK	Measure	QUANTITIES: Miles from / to	Miles from / to	Miles from / to	Miles from / to	Miles from / to	Miles from / to	Miles from / to	Miles from / to	Miles from / to	Total Measure	Rate	Amount	Total Amount	REMARKS
TOTALS BROUGHT FORWARD															
Concrete 1-2-5															
Concrete 1-3-6	c. y.														
Concrete 1-3-5 in arch culverts, incl. curbing	c. y.														
Concrete 1-2-4 in arch culverts	do.														
Concrete in box culverts	do.														
Concrete reinforcement, from [illegible]	do.														
Concrete in R. walls and bridge seats	do.														
Cofferdams, measure	c. y.														
Second class [illegible]	c. y.														
Third class [illegible]															
Trestles, measure															
Masonry [illegible]															
Timber [illegible]															
From [illegible]	mile														
From [illegible]	y.														
Flat [illegible]	c. y.														
[illegible]	each														
[illegible]	each														
[illegible]															
[illegible]															
[illegible]															
[illegible]	c. y.														
[illegible]															
[illegible]	each														
[illegible]	rod														
Cribs	each														
Tunnels, rock excavn. (unlined)	lin. ft.														
Tunnels, lined	lin. ft.														
[illegible]	c. y.														
[illegible]	c. y.														
Trimming tunnels, [illegible]	lin. ft.														
Rock [illegible]	miles														
[illegible]	each														
Timber [illegible]	each														
Timber [illegible]	each														
Timber

THE NATIONAL TRANSCONTINENTAL RAILWAY

Form 89

DISTRICT 23

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

PARTY FROM MILE TO MILE

QUANTITIES

DESCRIPTION OF WORK	Measure	Miles from 10	Miles from	Miles from	Miles from	Miles from	Miles from	Miles from	Miles from	Miles from	Total Measure	Rate	Amount	Total Amount	REMARKS
Right of way															
Clearing	acre	1.0													
Trees cut down	each	2													
Grubbing	acre	.2													
Solid Rock	c.y.	1													
Loose rock		.2													
Common excavation		3													
Excavation		1													
Overhaul		1													
Piling delivered		.2													
Piling driven		.2													
Sheet piling															
Wakefield															
Crosshead	cushion ok														
Pile driver															
French drain															
Paving		1.													
Culverting		2													
Hand		2.2													
Post		.2													
Piling															
Rock		.2													
Cedar		.2													
Frame		1													
Cap		4.1													
Sawed		1.1													
String		.1													
Collar		4.													
Plank		.2													
Timber		.2													
Vitrified pipe culverts	10 inch diam	lin ft		.2											
	12 inch diam	lin ft		.2											
	15 inch diam	lin ft		.2											
Reinforced concrete pipe	24 inch diam	lin ft		.2											
	30 inch diam	lin ft		.2											
	36 inch diam	lin ft		.2											
	42 inch diam	lin ft		.2											
	48 inch diam	lin ft		.2											
	54 inch diam	lin ft		.2											
	60 inch diam	lin ft		.2											
	72 inch diam	lin ft		.2											
Corrugated iron culverts	10 inch diam	lin ft		.2											
	12 inch diam	lin ft		.2											
	15 inch diam	lin ft		.2											
	18 inch diam	lin ft		.2											
	24 inch diam	lin ft		.2											
	30 inch diam	lin ft		.2											
	36 inch diam	lin ft		.2											
	42 inch diam	lin ft		.2											
	48 inch diam	lin ft		.2											
	54 inch diam	lin ft		.2											
	60 inch diam	lin ft		.2											
Concrete bridge seats	12 x 24 x 10 thick			2											
Concrete	24 cu yds mixed 6 in thick			2											

TOTALS CARRIED FORWARD

THE NATIONAL TRANSCONTINENTAL RAILWAY

DISTRICT B

APPROXIMATE ESTIMATE OF COST OF CONSTRUCTION

PARTY FROM 0 MILE TO 15 MILE (Continued)

QUANTITIES

DESCRIPTION OF WORK	Measure	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Miles from to	Total Measure	Rate	Amount	Total Amount	REMARKS
TOTALS BROUGHT FORWARD															
Concrete 1-3-5	c y														
Concrete 1-3-6	c y														
Concrete 1-3-5 in arch culverts incl'g curbing	c y														
Concrete 1-3-6 in arch culverts, do	c y														
Concrete 1-3-6 in box culverts do	c y														
Concrete 1-2-4 ordinary footing Pins, do	c y														
Concrete 1-2-4 walls of bridging do	c y														
First class masonry	c y														
Second class masonry	c y														
Third class masonry	c y														
Dry masonry	c y														
Masonry [illegible]	c y														
Timber [illegible]	m ft														
Extra [illegible]	m ft														
Piling [illegible]	m ft														
Extra [illegible]	each														
Extra [illegible]	each														
Timber [illegible]	each														
Extra [illegible]	each														
Extra [illegible]	each														
Extra

March 26th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs:—

Herewith please find comparative estimate showing cost of 150 miles of the Transcontinental Railway, from the North end of the Quebec Bridge Westerly based on quantities derived from the revised location, up to March 10th, 1906, and revised prices for certain minor items after consultation with the District Engineer, and also cost of same work calculated at prices submitted in tenders 5, 6, 7, 8, 9, 10.

Your obedient servant,

Enclos. (*Sgd.*) H. D. L.

March 21st, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs:—

In regard to the attached estimate made by Mr. Doucet, it seems in every way to confirm the comparisons made in this office, when the decreases in quantities made by Mr. Doucet's revision are taken into consideration. Our comparative estimate included assumed quantities and prices for various items not given by Mr. Doucet, and were put in in case circumstances might arise necessitating the use of any of them, especially so in the case of trees cut outside of right of way (item No. 2), and cross logging (item No. 14). I note that Mr. Doucet has included sawn ties for bridges (No. 26) and sawn ties for switches (No. 78) with these tenders. My understanding was that No. 26 was to go with the contract for the steel bridge superstructure (with the exception of possibly a few ties required for short timber spans, and No. 78, to go with the contract for ties. Mr. Doucet's prices for stone filling for cribs (No. 18) seems to me high, and for concrete facing (No. 58) too low. I see no objection to these figures being submitted to the Consulting Engineer to the Government.

Your obedient servant,

(*Sgd.*) H. D. L.

March 19th, 1906.

P. E. Ryan, Esq.,
Secretary.

Dear Sir:—

I beg to hand you herewith duplicate copies of condensed profiles on a scale of 4 miles to one inch horizontal, and 400 feet to one inch vertical, to accompany maps of portions of Districts "B", and "F", which have been submitted to the Government for approval.

Yours truly,

(*Sgd.*) H. D. L.

March 16th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

DISTRICT "F."

Sirs:—

Herewith I beg to hand you sheets showing the results of the moneying out of the quantities estimated by us, by the prices given in the various numbers designating tenders submitted to us, together with a summary of the same. The amount of the estimate made by me, using the same quantities, is $13,800,576.29, so it can been seen at once how the values under the respective numbers compare with the estimate made by me,

Your obedient servant,

March 16th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

DISTRICT "B".

Sirs:—

Herewith I beg to hand you sheets showing the results of the moneying out of the quantities estimated by us, by the prices given in the various numbers designating tenders submitted to us, together with a summary of the same. The amount of the estimate made by me, using the same quantities, is $6,842,534.26, so it can be seen at once how the values under the respective numbers compare with the estimate made by me.

Your obedient servant,

March 16th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

VIADUCT.

Sirs:—

Herewith please find quantities and prices for the various tenders made by Bridge Companies, for the Cap Rouge Viaduct, together with a summary of the same. All the designs submitted comply with our requirements

Your obedient servant,

Enclos.

March 14th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs:—

Herewith please find an estimate of the works now tendered on in Districts "B", and "F", exclusive of viaduct. This estimate, which was prepared before knowing any of the prices given by tenderers, I believe to be ample for the completion of the work, and leave a fair margin of profit for the contractor, but a variation of say 10% might be a reasonable price for a tenderer to make. If below this margin of 10%, it would, in my opinion, be too low to insure the completion of the work.

Your obedient servant,

Enclos.

I confirm the above.
(*Sgd.*) D. MacPherson,
Assistant Chief Engineer.

March 14th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs:—

Herewith please find duplicate maps on a scale of 4 miles to 1 inch, of portions of Districts "B" and "F", showing the route of this railway as now being tendered on. You have already verbally approved of these, and I am now submitting these copies for the approval of the Government.

Your obedient servant,

OTTAWA, March 16th, 1906.

TRANSCONTINENTAL RAILWAY.

TENDERS. DISTRICT F.

Number of Tender.	Total Amount of Tender	Difference between Tenders.	Remarks.
	$ c	$ c	
4	13,010,399 00		In Tender No. 4 no prices were given for Items 15, 21, 28, 32, 33, 35, to 50 inclusive, 54 to 57 inclusive, 60, 62, 64, 66, 81, 82, 83, 90, 93 and 94, and for the sake of comparison these items were fixed at prices fixed by Chief Engineer.
		64,869 21	
2	13,1?1 ?73 35		
		937,952 07	
3	14,069,625 42		In Tender No. 3 Items 35 to 46 inclusive, and 81 to 83 inclusive, were bid for at cost plus 10%, and for sake of comparison were figured at prices fixed by Chief Engineer.
		3,089,997 70	
1	17,159,623 12		
		4,092,818 98	Difference between Tenders Nos. 4 and 1.

D. MACPHERSON,
Asst. Chief Engineer.

CANCELLED

Ottawa, March 16th, 1906.

TRANSCONTINENTAL RAILWAY.

TENDERS. DISTRICT B.

Number of Tender.	Total Amount of Tender	Difference between Tender	Remarks.
	$ c	$ c	
7	5,297,257 00		
		252,737 48	
8	6,176,570 70		
		1,019,851 40	
6	7,196,422 10		In Tender No. 6 Items 35 to 46 inclusive, and 81 to 83 inclusive, were bid for at cost, plus 10%, and for sake of comparison were figured at prices fixed by Chief Engineer.
		206,192 86	
5	7,402,614 96		In Tender No. 5 the same remark applies to Items 35 to 46 inclusive, and 81 to 83 inclusive, as for No. 6.
		520,850 63	
10	7,923,465 59		In Tender No. 10 Item 91, for Telegraph Line, has remark: "For 10 Wires."
		868,468 61	
9	8,791,934 20		
		$2,868,100 98	Difference between 7 and 9.

D. MacPherson,
Asst. Chief Engineer.

CANCELLED

N. T. R.

INVESTIGATING COMMISSION

Exhibit 30

Correspondence in connection with La Tuque Pusher Grade.

(See Page 100 of Report)

CORRESPONDENCE referred to in the foregoing Report *re* La Tuque Pusher Grade.

File 4866. OTTAWA, June 15th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs,—

Herewith I beg to hand you a letter from the Assistant Chief Engineer, together with a sketch plan and profile of the lines run, in regard to the location of our line in the vicinity of La Tuque, and also as to securing land for a Divisional Yard at that point. It will be seen by the comparative estimate (also attached) made by the District Engineer, Mr. Doucet, of the three lines run in that vicinity that there is a large difference in cost in favour of the blue line, viz: $485,807.00 of a saving in a distance of say 10 miles; but on line "C" or blue line, it will be necessary to use a 0.65 grade compensated or curvature adverse to eastbound traffic, but if a divisional yard is established at this point it would not be a serious objection and I would beg to recommend that the matter be at once submitted to the Government for their approval as the contractors are now waiting at that point to start work. It would also be advisable in the event of determining to make a divisional point here to at once get options on the necessary land for such purpose.

Your obedient servant,

(Sgd.) HUGH D. LUMSDEN.

File-4960. OTTAWA, July 4th, 1906.

The Commissioners of the Transcontinental Railway,
Ottawa, Ont.

Sirs,—

Herewith I beg to hand you plans and profiles of the alternative lines run in the vicinity of La Tuque, together with an estimate of cost of same, for the purpose of receiving the sanction of the Government to the use of a 0.65 compensated grade at this point, and would beg to recommend the adoption of the shortest line "C" with a 0.65 compensated grade adverse to east-bound traffic. My reasons for doing so are that La Tuque is likely to be a divisional point, and this grade will commence within a half mile of it, and is 4 4-5 miles long, and the cost of the construction of line "C" is $516,113.00 less than the best of the other two lines. When its operation value is taken into consideration it is still $485,807.00 less than either of the other lines, and it is also two miles shorter.

As construction has been delayed at this point pending a decision, it is important that such should be given as soon as possible.

Your obedient servant,
(Sgd.) HUGH D. LUMSDEN.

The Commissioners referred the whole matter to the Minister of Railways and Canals.

OTTAWA, July 4th, 1906.

Sir,—

I have the honour by direction of the Board to hand you herewith plans and profiles of three alternative lines run in the vicinity of La Tuque, together with statements showing the estimated cost of each; also a letter from our Chief Engineer dated the 4th inst., recommending the adoption of the shortest line marked C with a 0.65 compensated grade adverse to eastbound traffic.

The Commissioners desire that you will have the kindness to submit the matter to His Excellency the Governor General in Council, for the approval of the adoption of Line "C" with a 0.65 compensated grade adverse to eastbound traffic for a distance of 4 4-5 miles.

You will note that the engineers of the Commission estimate that the saving in cost of construction of line "C" will be $516,113.00 over the best of the other two lines, and that the saving in construction and operation will be $485,807.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) P. E. RYAN,

Secretary.

The Honourable, The Minister of Railways and Canals,
Ottawa.

Encl.

This letter was referred to the Chief Engineer, M. J. Butler, who reported on July 8th, 1906, as follows:—

OTTAWA, July 5th, 1906.

Sir,—

Under date of the 4th inst. the Commissioners of the Transcontinental Railway submit a report of the Chief Engineer, Mr. H. D. Lumsden, and of the District Engineer, Mr. A. E. Doucet, recommending that a pusher grade of 0.65 be adopted for a distance of four and four-fifths (4 4-5) miles, near La Tuque; and they allege that the adoption of this grade would save two (a) miles in distance, and four hundred and eighty-five thousand, eight hundred and seven ($485,807.00) dollars in money.

I have considered the matter and without attempting to go into the minutiæ of the calculations submitted beg to report that in my judgment, permission ought not to be granted for any grade in excess of four tenths of one per cent, (0.4); for the reason that it has been stated over and over again by members of the Government that a four-tenths grade had been secured from Winnipeg to Quebec, and it seems to me that no circumstances should be permitted to interfere with the adoption of this grade between the points named.

East of Quebec the conditions are different and pusher grades may well be adopted between Quebec and Moncton; but that, however, is not now under discussion.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) M. J. BUTLER,

Deputy Minister and Chief Engineer.

Hon. H. R. Emmerson, K.C., P.C.,
Minister of Railways and Canals,
Ottawa.

The Government having approved Mr. Butler's report, he notified Mr. Parent of their decision in the following telegram:—

B65MO C G 13 DH Ottawa, Ont., July 14–06.

Hon. S. N. Parent,
Chairman Trans. Ry.
Quebec.

Government will not approve any pusher grades in line between Quebec and Winnipeg.

M. J. Butler.

2.20 P.M.

and the Engineers in the field were advised that the pusher grade proposition had been rejected and they proceeded with the work of building the expensive and costly 0.4% grade line

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The following letter from District Engineer Doucet, dated June 21st, 1906, gives his arguments for the 0.65 grade line.

Quebec, 21st June, 1906.

Hon. S. N. Parent
Chairman,
Ottawa,

Dear Sir,—

With reference to the Government's refusal to adopt the short pusher grade at LaTuque, I am very anxious to place myself on record as dissenting most emphatically from the decision arrived at of not countenancing pusher grades between Quebec and Winnipeg, as I am certain that a rigid adherence to such a ruling will cost the Government many millions of dollars. The Act says that the Eastern Division shall be constructed by the Government upon such location and according to such plans and specifications as it shall determine, having due regard to direction, easy gradients and favourable curves. The objection to the pusher grade, particularly at Divisional points, of which LaTuque will be one, is reduced to a minimum when one takes into account the immense sums of money saved at certain points by their use. It has been stated that the Transcontinental Railway would be built on a 4–10 grade eastbound, and the use of a few pusher grades at divisional points will not contradict this statement if provisions are made and allowances provided for overcoming the extra amount of power required for hauling trains loaded for a 4–10 grade up the pusher grade, without dividing them into sections.

The grades at the approaches of the Quebec Bridge are 1%, whereas what we intend putting in at La Tuque is but 65/100 of 1%. At Quebec where will always be spare engines for assisting trains up the 1% grade, and La Tuque being a divisional point will also have a spare engine or two always on hand.

Again, pusher grades are not contrary to good location, if such a saving in the cost of construction as will much more than compensate for the cost of pusher

engines can be made. It is rather the very contrary and I am certain American engineers will not be at all complimentary to our knowledge of railway location when the interest of the extra cost of construction in this one case at La Tuque is taken into account.

From our present knowledge of the ground at La Tuque we are convinced that there is but one line to build, and that is the line on the 0.65 pusher grade for the following reasons:

1st. It is the cheapest to construct, on a conservative estimate, by $508,000.
2nd. It is two miles shorter than the line located on a 4/10 grade.
3rd. It has 419° less curvature.
4th. It has 8 curves less.
5th. It has no tunnels, whereas, the 4/10 grade location has two.
6th. The pusher grade is but 4 8/10 miles long.
7th. It begins at the end of the Divisional Yard.
8th. It has but 0.65% grade, or plus 60% of the main line grade; therefore, any old yard engine can be used as a pusher.
9th. It is the most direct, has less curvature, two of the conditions required by the Act, and the increased gradient can be taken care of by the yard engine.
10th. It is so short and so close to the yard that no telegraph office at the head of the grade will be required.
11th. It will lessen the 70,000 c. yds. of solid rock at the head of the grade by one-half and thus save a considerable amount of time in construction.
12th. It will eliminate two serious difficulties in connection with the line of the Quebec & Lake St. John Ry.
13th. The use of a 4/10 grade will practically destroy our station ground, as we will be forced to continue the grade throughout its full length and for two miles north, thereby very materially increasing the heavy embankments at the Big Bostonnais River and the Bostonnais Bridge itself.

The comparative estimate of cost of construction and equating values of the two lines is as follows:—

Cost of Construction.	4/10 grade	0.65 pusher g.
Cost of construction	$1,206,014	$698,192
Distance, Pusher Grade, 2 mls. shorter—2 x $54,000	108,000	
Curvature, Pusher Grade has 419° less—419° x 36.00	15,084	
Curvature, Pusher Grade has 8 curves—8 x $1,000	8,000	
Rise and Fall same on both lines		
Pusher engine 4 8/10 miles x 0.70 x 365 days @ 4%		153,300
	$1,337,098	$851,482
	851,482	
Saving by adoption of pusher g	$485,616	

It seems to me that if the Engineers responsible for the rejection of our proposition to use a pusher grade had taken the opportunity to visit La Tuque, their decision would have been far different, and I cannot help pointing out once again

that a grave error has been committed in laying down an arbitrary ruling that pusher grades will not be entertained between Quebec and Winnipeg. I hope it is not too late to revise this decision, but at all events I am most anxious, as I mentioned at the beginning of this letter, to place myself on record as strongly protesting in favour of a 0.65 pusher grade at the Divisional Point of La Tuque.

Yours very truly,
(Sgd.) A. E. Doucet,
District Engineer.

Mr. Butlers' telegram of July 14th does not appear to have closed the matter for on July 25th, 1906, Mr. S. N. Parent wrote to Mr. Hayes as follows:—

Ottawa, 25th July, 1906.

Dear Mr. Hayes:—

Herewith I am sending you for the information of your Company, copy of letters, plans and profiles, regarding the location of our line in the vicinity of La Tuque, Que.

With our engineers, I am of the opinion that pusher grades are not contrary to good location, if such a saving in the cost of construction as will much more than compensate for the cost of pusher engines can be made. It is rather the very contrary, and I am certain American engineers will not be at all complimentary to our knowledge of railway location when the interest of the extra cost of construction in this one case at La Tuque is taken into account, if any other line should be adopted.

From our present knowledge of the ground at La Tuque, we are convinced that there is but one line to build, and that is the line on the 0.65 pusher grade, for the following reasons:

1st. It is the cheapest to construct, on a conservative estimate, by $508,000.
2nd. It is two miles shorter than the line located on a 4/10 grade.
3rd. It has 419° less curvature.
4th. It has 8 curves less.
5th. It has no tunnels, whereas the 4/10 grade location has two.
6th. The Pusher Grade is but 4 8/10 miles long.
7th. It begins at the end of the Divisional Yard.
8th. It is but 0.65% grade, or plus 60% of the main line grade, therefore, any old yard engine can be used as a pusher.
9th. It is the most direct, has less curvature, two of the conditions required by the Act, and the increased gradient can be taken care of by the yard engine.
10th. It is so short and so close to the yard that no telegraph office at the head of the grade will be required.
11th. It will lessen the 70,000 c. yds. of solid rock at the head of the grade by one-half and thus save a considerable amount of time in construction.
12th. It will eliminate two serious difficulties in connection with the line of the Quebec & Lake St. John Railway.
13th. The use of a 4/10 grade will practically destroy our station ground throughout its full length and for two miles north, thereby very materially increasing the heavy embankments at the Big Bostonnais River and the Bostonnais Bridge itself.

The comparative estimate of cost of construction and equating values of the two lines it as follows:—

Cost of Construction.	4 /10 grade	0.65 pusher g.
Cost of construction	$1,206,014	$698,192
Distance, Pusher Grade, 2 miles shorter—2 x $54,000.	108,000	
Curvature, Pusher Grade has 419° less—419° x 36.00.	15,084	
Curvature, Pusher Grade has 8 curves less—8 x $1,000	8,000	
Rise and Fall same on both lines		
Pusher Engine 4 8 /10 miles x 0.70 x 365 days @ 4%		153,300
	$1,337,098	$851,482
	851,482	
Saving by adoption of pusher g	$485,616	

I must say that the Commissioners entirely agree with these conclusions; but before taking a decision on the matter the Government would like to have the opinion of your Company.

Will you kindly give this question your early consideration and advise me,

Yours very truly,
(Sgd). S. N. PARENT.

2 encl.
4 plans.

Which was replied to on August 27th, 1906, as follows:

Grand Trunk Pacific Railway, Montreal, Canada.

August 27th, 1906.

My dear Mr. Parent:—

Your letter of July 25th, with copies of correspondence from your engineers, plans and profiles, regarding the location of the Transcontinental Railway in the vicinity of La Tuque, Que., duly received, and earlier reply thereto has been prevented by the absence in the West of Vice-President and General Manager Morse and his staff, Chief Engineer Kelliher, and Assistant Chief Engineer Woods.

These gentlemen having now returned and given careful consideration to the plans and profiles submitted with arguments bearing thereupon, concur with me in the opinion that under the circumstances set forth in the correspondence, we would not be justified in insisting at this time on the construction of the line on a four-tenths per cent grade, but that a 0.65 "pusher" grade should be adopted thereof in lieu thereof, because of the cheaper cost (estimated by your engineers at $508,000,) the two miles shorter distance, the 410 degrees less curvature, eight curves less and the absence of tunnels, (whereas the four-tenths grade location has two tunnels,) location of the pusher grade at the end of proposed Divisional yard, saving 70,000 cubic yards of solid rock excavation and interference with proposed station ground.

The foregoing are all practical reasons which may be very properly advanced for the adoption of a pusher grade.

In my opinion, however, the Commission should carefully consider with the Government the effect upon the minds of the public regarding this Transcontinental Railway, which has been widely advertised as being the only low grade line from the Atlantic to the Pacific, with definite statements to the effect that the maximum grade will be limited to four-tenths of one per cent east of the Rocky Mountains. If exception is made in this instance, will not the same arguments be used for adopting a 0.65 or even higher grade at other points, and would not then our proposed maximum of four-tenths have disappeared altogether?

Should you, after further consideration of the points I have raised, still feel that for the reasons given it is desirable to adopt the 0.65 pusher grade, you may consider the assent of this Company having been given thereto, provided it is understood, when the volume of traffic shall have reached a sufficient magnitude, to reduce the grade to four-tenths, then the cost of such expenditure shall be assumed by the Government and interest thereon at three per cent shall be paid by the lessors—the Grand Trunk Pacific Railway Company.

Yours truly,

(*Sgd.*) CHAS. M. HAYES
President.

HON. S. N. PARENT,
Chairman, National Transcontinental Railway Commission,
Ottawa.

Mr. Parent then wrote to Sir Wilfrid Laurier as follows:

OTTAWA, 28th August, 1906.

Dear Sir Wilfrid:—

In connection with the pusher grade question at La Tuque, you no doubt remember that during the course of our conversation in your office you stated that the Cabinet would be willing to reconsider the decision arrived at, asking me to communicate with the Grand Trunk Pacific Railway regarding this matter. I have without delay followed your suggestion, and after a long delay, for which reasons are given, I am now able to submit to you the answer of the Company. As there is no time to lose, I am forwarding you the original in case the Cabinet would desire to possess it in order to consider the subject. At our last conversation, Honourable Mr. Emmerson was present, and I would kindly ask you to pass it over to him before it shall be submitted to the Cabinet.

For our interest it would be desirable that the Government should not postpone its decision in the matter in order not to obstruct the progress of our work done at La Tuque, and if the Cabinet now thinks that the recommended Pusher Grade, favoured by all engineers, is preferable, we should be very happy to be informed of same without delay.

Awaiting for a definite decision, believe me,

Yours sincerely and truly,

(*Signed*) S. N. PARENT.

HON. SIR WILFRID LAURIER,
Prime Minister.

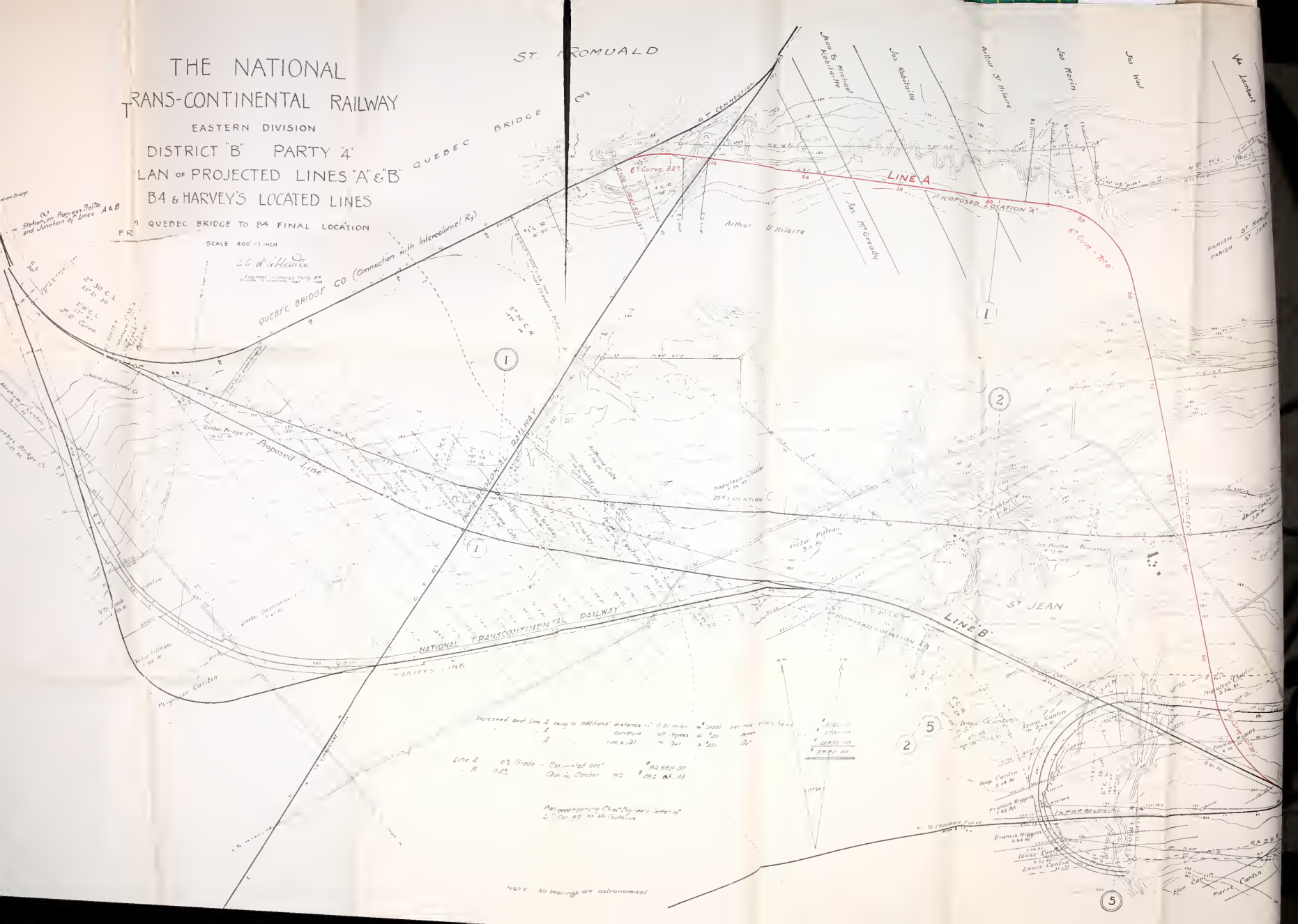
and a search of the records do not reveal any reply to this communication.

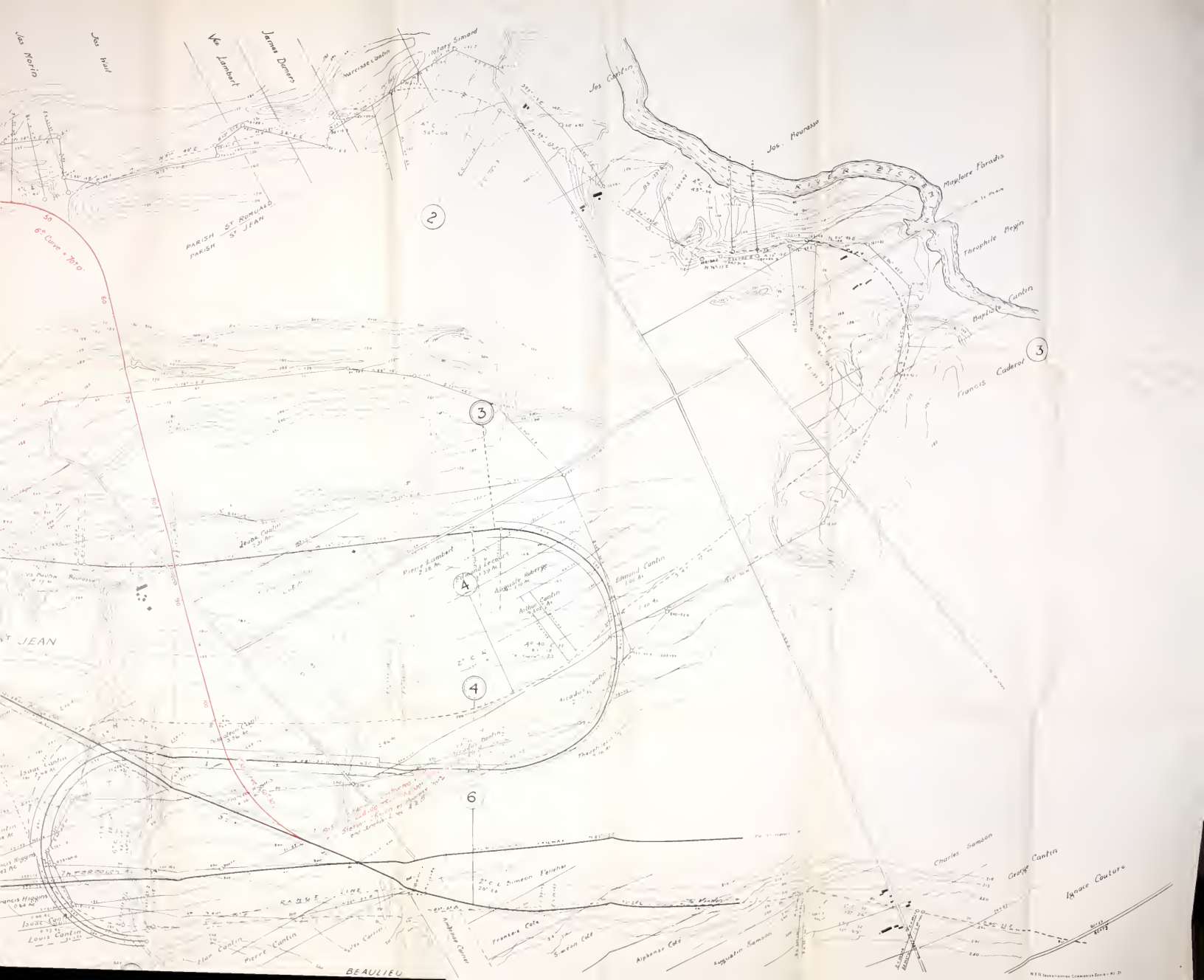
N. T. R.

INVESTIGATING COMMISSION

Exhibit 31

Map and Profile showing Railway and Projected Line "A" around Chaudiere Cut.
(See Page 90 of Report)


THE NATIONAL
TRANS-CONTINENTAL RAILWAY
EASTERN DIVISION
DISTRICT "B" PARTY "4"
PLAN OF PROJECTED LINES "A" & "B"
B4 & HARVEY'S LOCATED LINES
QUEBEC BRIDGE TO B4 FINAL LOCATION
SCALE 400' = 1 INCH
ST. ROMUALD
QUEBEC BRIDGE Co's
QUEBEC BRIDGE CO (Connection with Intercolonial Ry)
LINE A
PROPOSED LOCATION "A"
6° Curve 32°
6° Curve 70.0'
Arthur St Hilaire
Jos McGready
Jean B. Archael Kobiarthe
Jos Robitaille
Arthur St Hilaire
Jos Marin
Jos Hart
Vve Lambert
PARISH ST ROMUALD
PARISH ST JEAN
Proposed Line
NATIONAL TRANSCONTINENTAL RAILWAY
INTERCOLONIAL RAILWAY
B4 LOCATION
LINE B
PROPOSED LOCATION "B"
ST JEAN
HARVEY'S LINE
INTERCOLONIAL
Isaac Cantin
Louis Cantin
Francis Higgins
Elzéar Cantin
Pierre Cantin
NOTE All bearings are astronomical


Jos Kerrio
Jos Huot
Vve Lambert
James Dumers
Narcisse Cantin
Hilary Simard
Jos Caplain
Jos. Haurasse
RIVER RETCH
Maxime Faradis
Theophile Pelgin
Baptiste Cantin
Francis Caderet
PARISH ST ROMUALD
PARISH ST JEAN
6° Curve = 76'10"
Louis Cantin
Pierre Lambert
Edmond Lecaul
Auguste Roberge
Arthur Cantin
Edmond Cantin
Ricaud Cantin
Theophile Cantin
Louis Cantin
Pierre Cantin
Jos Carrier
Frontera Cote
Simeon Cote
Alphonse Cote
Augustin Samson
Charles Samson
George Cantin
Ignace Couture
RANGE LINE
BEAULIEU

ST JEAN
BEAULIEU
LINE B
RANGE
1
2
3
4
5
6

THE NATIONAL

TRANS-CONTINENTAL RAILWAY

EASTERN DIVISION

DISTRICT B. PART 4

PLAN OF PROJECTED LINES A & B

AND HARVEYS LOCATED LINES

FROM QUEBEC BRIDGE TO PA FINAL LOCATION

SCALE 400 FEET = 1 INCH

LINE B.

ST JEAN

NATIONAL TRANSCONTINENTAL RAILWAY

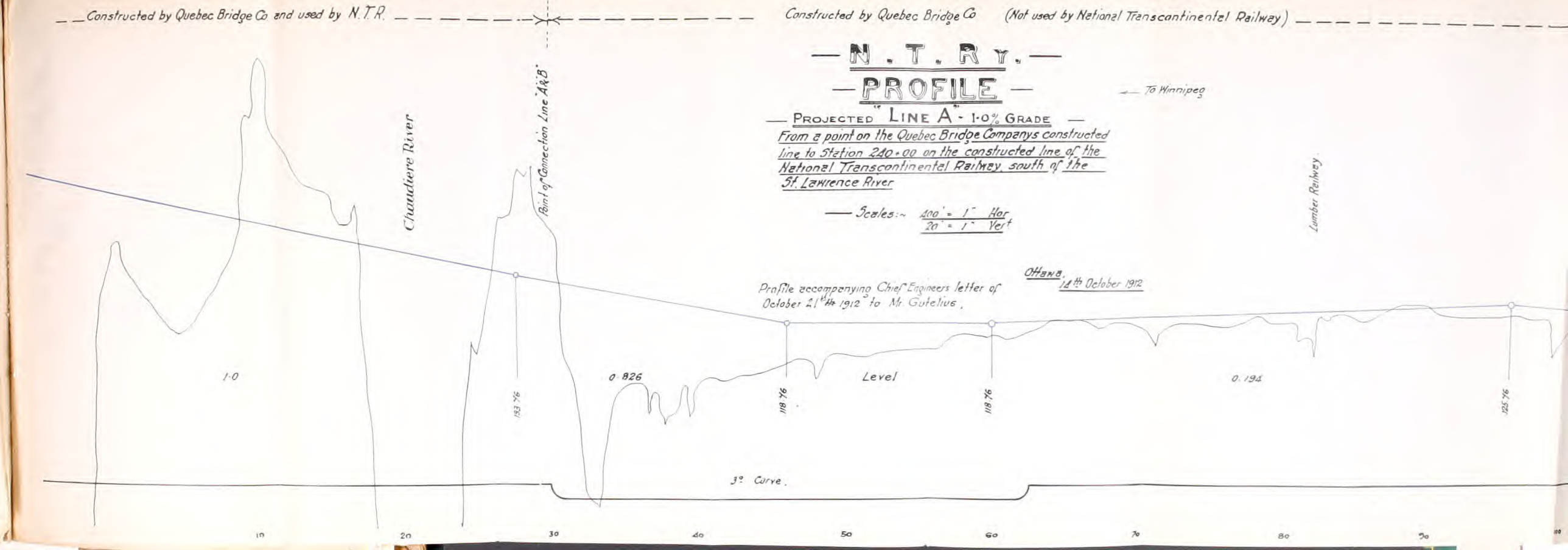
HARVEY'S LINE

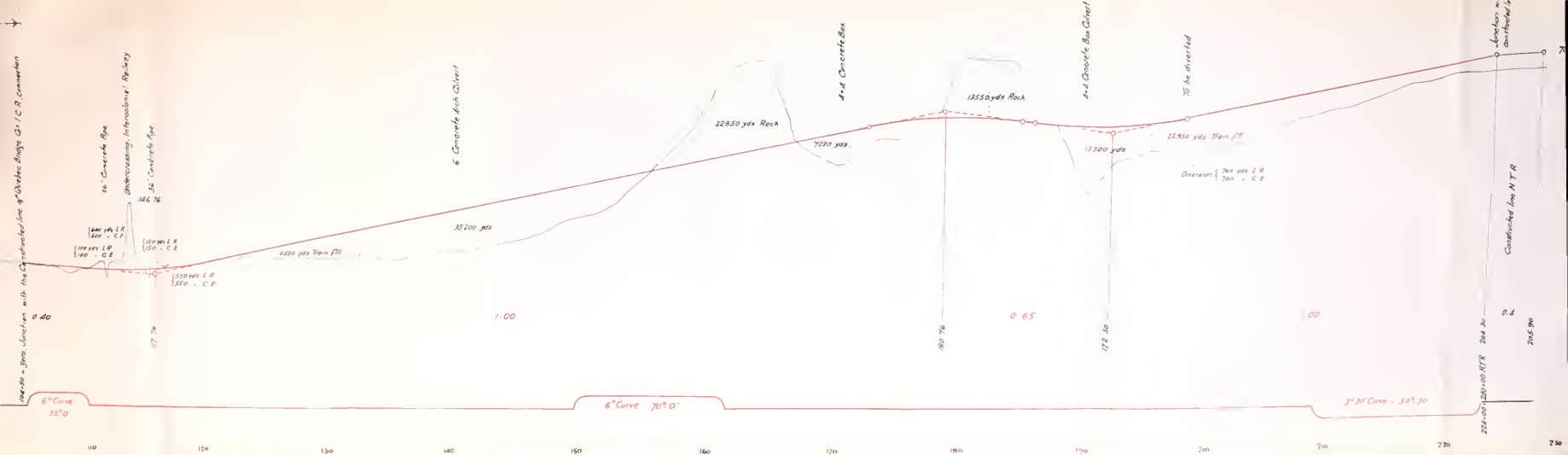
QUEBEC BRIDGE CO

Proposed Line

Proposed Location Line

Pierre Cantin


Constructed by Quebec Bridge Co and used by N.T.R.
Constructed by Quebec Bridge Co (Not used by National Transcontinental Railway)
— N. T. R. —
— PROFILE —
To Winnipeg
— Projected "Line A" - 1·0% Grade —
From a point on the Quebec Bridge Companys constructed line to Station 240+00 on the constructed line of the National Transcontinental Railway, south of the St. Lawrence River
— Scales:- 400' = 1" Hor
20' = 1" Vert
Chaudiere River
Point of Connection Line A & B
Lumber Railway
Profile accompanying Chief Engineers letter of October 21st 1912 to Mr. Gutelius.
Ottawa, 14th October 1912
1·0
0·826
Level
0·194
153·76
118·76
118·76
125·76
3° Curve.
10
20
30
40
50
60
70
80
90
100


36" Concrete Pipe
Underclassing Intersection of Railway
36" Concrete Pipe
146.76
6 Concrete Arch Culvert
22850 yds Rock
4-4 Concrete Box
1355 0 yds Rock
4-4 Concrete Box Culvert
70 be diverted
22850 yds Train fill
13300 yds
Diversion 700 yds L.R. 700 - C.E.
35200 yds
6250 yds Train fill
7230 yds.
100 yds L.R. 100 - C.E.
150 yds L.R. 150 - C.E.
550 yds L.R. 550 - C.E.
Junction with the Constructed line of Victoria Bridge Q.J.C.R. connection
Junction with Constructed line N.T.R.
0 40
1:00
0 65
00
0.1
110 76
172 30
117 76
205 90
6° Curve 32° 0'
6° Curve 70° 0'
3° 30' Curve - 50° 30
110
120
130
140
150
160
170
180
190
200
210
220
230

N. T. R.

INVESTIGATING COMMISSION

Exhibit 32

(See Page 118 of Report)

Transl. C.R.D.

In the year one thousand nine hundred and eleven, on the nineteenth day of the month of August, before the undersigned JOSEPH G. COUTURE, Notary Public for the Province of Quebec, in Canada, residing and practising in the city of Quebec, has appeared Mrs. Laura Tousignant, wife, separated as to property by the marriage contract passed before Henri R. Dufresne, Notary, residing at St. Pierre-les-Becquets, on the tenth day of January in the year one thousand nine hundred and nine and registered at Quebec on May 14th of the same year under number 28563, of Mr. Napoleon Martineau, junior, merchant, of the said city of Quebec, duly authorized by her said husband also a party to the present deed and acting both to authorize his said wife and to contract for and his own personal name.

And the said Mrs. Laura Tousignant-Martineau has declared to have sold as by these presents she doth sell with guarantee against all mortgages and all troubles whatever, to *Raoul Rene Bergevin*, of the said city of Quebec, merchant, herewith present and accepting, that is to say:

The wooden buildings or structures used by her as an ice-house and a shed or stable, on their dependencies, erected on the lot and land known and designated under the number two thousand five hundred and twenty-five (2525) of the official cadastre for Champlain Ward of the City of Quebec; the said Mrs. Martineau declaring that this ice-house belongs to her by virtue of the terms of the marriage contract above quoted.

By these same presents the said Napoleon Martineau sells, makes over and transfers to the said Raoul R. Bergevin all the rights he may have as lessee of the part which he occupies of the said lot of land known under the number two thousand five hundred and twenty-five of the official cadastre for Champlain Ward, in virtue of a lease made in his favor by the Marchioness of Bassano, represented by Alfred C. Dobell, of Quebec, Advocate, dated at Quebec the twenty-fifth day of February, in the year one thousand nine hundred and eight, executed in the presence of witnesses, which lease is still of force up to the first day of May next 1912 by implied continued tenancy, and also in virtue of a lease in his favor by Adolphe Chevalier, executed in the presence of witnesses on the seventh day of December, in the year one thousand nine hundred and eight, for three years from the first day of May one thousand nine hundred and nine, the said Napoleon Martineau renouncing all his rights as lessee or occupant of the said piece of ground and pledging himself to give up its free possession and enjoyment to the said vender on or before the first day of May next. In consequence, the said Mrs. Martineau will be allowed to use the said ice-house until the first day of May next, without paying rent to the vender, but she shall pay all the municipal and school taxes imposable by the City of Quebec upon the said ice-house; in a like manner, the said Napoleon Martineau also pledges himself to pay the said taxes upon the other buildings erected on the lot of land which he thus occupies as lessee until the first of May next, the said Napoleon Martineau also pledging himself to pay to the proper person the rent for the land up to the first day of May next.

It is moreover agreed that if the said vendee should see fit to rent the said land after the first day of May next, the said Napoleon Martineau shall have the preference for renting it at the price which may be offered bona fide to the said vendee by any other person.

Lastly, this sale is made for the price of two thousand dollars, current money, which amount the said Napoleon Martineau and his said wife have declared to have received this day from the purchaser, for which receipt in full.

DONE AND PASSED AT QUEBEC under the number Twelve thousand and ninety of the minutes of the said Notary, and signed by the said parties with me the said Notary, after the same being read.

(Signed) "N. MARTINEAU, JR."
" "LAURA T. MARTINEAU."
" "RAOUL R. BERGEVIN."
" "J. G. COUTURE, N.P."

A true copy of the minute remaining in my office.

J. C. COUTURE.

On the 25th day of February in the year of Our Lord one thousand nine hundred and eight.

Before me the undersigned witness came and appeared Alfred C. Dobell, Advocate, in his capacity of Attorney for the Duchess of Bassano being so duly appointed by power of attorney signed before witnesses in the City of Paris in France on the 28th of March, 1906.

Who acknowledged and confessed to have demised and leased, and by these presents do hereby demise and lease, for the space of one year and seven months to be computed from the first day of the month of October, 1907, and which will end on the first day of May, 1909, unto Napoleon Martineau, Junior, of the City of Quebec, ice merchant, hereunto present and accepting thereof, that is to say a certain lot of land measuring 37 feet by 60 feet being part of that lot of land now known and designated upon the Cadastral plan and in the book of reference thereto for Champlain Ward in the City of Quebec under number two thousand five hundred and twenty-five (2525) no warranty as to exact measurement; whereof the Lessee is content and satisfied.

During all which time the said Lessor does hereby promise and engage to cause the said Lessee to enjoy the said premises peaceably and quietly, save and except by giving a six months' notice at the expiration of which the lease shall expire.

And the said Lessee does hereby promise and engage to submit and conform to all regulations of Police in regard to the said premises, now in force or which may hereafter established by competent authority, for maintaining the cleanliness of the City, and of the Streets, Lanes, Yards and Houses therein; not to make over or sub-let his right to the present lease without the consent in writing of the Lessor, and to surrender the said premises at the expiration of the present lease without any previous notice to quit being required, or to quit at the expiration of six months after receiving notice to that effect.

The present Lease is thus made for and in consideration of the sum of seventy-five dollars current money of this Province payable by the Lessee to the said Alfred C. Dobell in two equal payments of the sum of thirty-seven dollars and fifty cents each current money aforesaid each.

The first instalment of thirty seven dollars and fifty cents shall be paid on the first day of April, 1908, and the second instalment shall be paid on the first of September, 1908, or should the Lessor take advantage of her right to terminate the present lease before that date the said instalment shall be due and payable three months after the receipt of the notice to quit. The said Lessee binds himself to pay at the divers periods when the same is payable all taxes, water rates or other dues which now are or which may hereafter be imposed on the said property above leased by the City of Quebec.

And for the due execution of these presents, the said parties have made election of domcile irrevocable to wit: the Lessor at the office of the said Alfred C. Dobell in the City of Quebec where payment shall be made and the Lessee on the premises hereby leased.

DONE AND PASSED at the City of Quebec, and signed by the said parties these presents having been first duly read.

ALFRED DOBELL.
W. MARTINEAU, Jr.
Witness EDW. Z. STANLEY.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 33

(See Page 118 of Report)

Transl. C. R. D.

In the year one thousand nine hundred and eleven, on the thirtieth day of the month of September, before Charles Edward Taschereau, Notary Public for the Province of Quebec, residing in the City of Quebec,

Did appear:—

Mr. Raoul R. Bergevin, of the city of Quebec, merchant tailor,

Party of the one part,

And the Commissioners of the Transcontinental Railway, a body politic and duly incorporated, having its head office in the city of Ottawa, in the province of Ontario, and here represented by the Honourable Simon Napoleon Parent, its President, duly authorized to the purpose of the presents,

Parties of the other part.

And the said parties have made between themselves the following declarations and stipulations, that is to say:—

Whereas the said party of the one part is the owner of an ice-house built upon the consecutive number 96B and on the top number two thousand five hundred and twenty-five (2525) upon the official plan and book of reference of the cadastre for Champlain Ward of the said city of Quebec;

Whereas, further, that, on account of the construction of the Transcontinental Railway through the said lot, the said ice-house must be removed.

Whereas, lastly, that the said party of the one part is ready to accept an indemnity as a compensation for the damages which the demolition of the said ice-house will cause him;

Therefore the presents bear evidence that the said party of the one part, in consideration of the sum of three thousand and seven hundred dollars ($3,700.00) which he acknowledges to have received from the said parties of the other part, upon the execution of the presents, hereby gives the latter a full and final receipt for all the damages caused him by the demolition of the said ice-house.

Done and passed at Quebec, in the year and on the day above mentioned, under the number six thousand one hundred and fifty-five of the minutes of the said C. E. Taschereau.

In witness whereof the parties have signed with the said Notary after the same being read.

(Signed) "S. N. Parent"
"Raoul R. Bergevin"
"C. E. Taschereau, N. P."

A true copy of the minute remaining of record in my office.

(Signed) C. E. Taschereau, N. P.

PROVINCE OF QUEBEC

REGISTRATION OFFICE, QUEBEC.

The twenty-second day of August, 1911.

In compliance with the demand now made me by C. E. Taschereau, N. P., I, the undersigned, registrar for the registration division of Quebec, do grant, by the presents, the following certificate of the registrations made in my office since the second day of October, 1871, date of the coming into force of the cadastre affecting the lot number two thousand five hundred and twenty five (2525) of the plan and reference book of the cadastre for Champlain Ward presently in the possession of J. B. Fradette.

1.—B94-452-42310.—Judiciary sale (par licitation) by the prothonotary of the District of Quebec to Marie-Anne Claire Symes of certain landed property situated near the St. Lawrence River, in the city of Quebec, described; subject to the payment of an annual rent of £57.10 to the Hotel-Dieu, and of another annual rent of £10, to the Harbour Commissioners. Sale price paid. The said sale dated December 4th, 1871.

PROTHONOTARY'S TITLE, April 9th, 1872.

REGISTERED——————April 12th, 1872.

2.—D1-403-252—Renewal by the above mentioned Marie-Anne Claire Symes of the registraiton of the real rights resulting from the sale mentioned in the preceding item, as affecting the said lot and other property,

JOHN STRANG, N. P., July 4th, 1872.

REGISTERED——————August 14th, 1872.

3.—B 236-729-130216.—Guarantee sale (dotion) in payment by Jean-Baptiste Fradette to "Gagnon & Frère" for an ice-house built on part of the said lot. The said "dotion" granted as a collateral guarantee for the reimbursement of the sum of $400, with interest at 8%, which the said Fradette pledges himself to pay within 3 years from the present date.

JOS. ALLAIRE, N.P., November 2nd, 1909.

REGISTERED————November 3rd, 1909.

REMILLARD & ROY,
Deputy Registrar.

4.—B 251-137123.—Sale by Mrs. Laura Tousignant, wife of Napoleon Martineau, to Raoul Rene Bergiven, of the buildings erected on the said lot. Sale by Napoleon Martineau, aforesaid, of his rights as lessee of part of the said lot. Sale price paid.

J. G. COUTURE, N. P., August 19th, 1911.

REGISTERED————August 22nd, 1911.

REMILLARD & ROY,
Deputy-Registrar.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY

To A. E. Doucet, on account of Right-of-Way, Dr.

Raoul R. Bergevin,
City of Quebec. 1911–12.

Sept. 23, 1911, for compensation for removal of ice-house, and damages, Cadastral No. 2525, Champlain Ward, City of Quebec, Province of Quebec	$3,700.00	$3,700.00

Correct,
28 Sept. 1911.
A. Tremblay.

Date Sept. 30th, 1911. RECEIVED from the Commissioners of the Transcontinental Railway the sum of THREE THOUSAND SEVEN HUNDRED DOLLARS in full settlement of the above account.

RAOUL R. BERGEVIN.

Correct:
D. HOCTOR,
Chief Accountant.

Approved by Board:
Sept. 26, 1911.
P. E. RYAN,
Secretary.

No. 137,511. This Deed of Acte d'accord was entered and registered in the Registry Office for the Registration Division of Quebec, at ten minutes past two o'clock P.M., on the third day of October, nineteen hundred and eleven, as number one hundred and thirty-seven thousand five hundred and eleven, B vol. 253, page 57.

REMILLARD & ROY,
Dep.-Registrar.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 34

(See Pages 118 and 119 of Report)

On this day the First of October in the year one thousand nine hundred and eight.

Before me the undersigned William Noble Campbell, Notary Public for the province of Quebec in Canada, residing and practising in the City of Quebec.

Personally came and appeared Alfred Curzon Dobell of the said City of Quebec, Advocate, acting herein in his capacity of the duly appointed Attorney of the Duchess of Bassano of the City of Paris, in the Republic of France under her power of Attorney executed before witness at Paris aforesaid on the Twenty-eighth of March nineteen hundred and six, who in the presence of me the said Notary, did by these presents both lease and demise for the space and term of three years to begin and be computed from the first day of May next (1909) and fully to be completed and ended on the Thirtieth day of April in the year one thousand nine hundred and twelve, unto Adolphe Chevalier, of the said City of Quebec, Ship Carpenter, also present and accepting hereof for himself, his heirs and assigns, as follows, that is to say:

That certain lot of land or cove and premises now known and designated upon the plan and in the book of reference thereto of the Cadastre for Champlain Ward of the said City of Quebec under the number two thousand five hundred and twenty-five (2525) together with the buildings thereon circumstances and dependencies, save and except that portion of that said lot now occupied by N. Martineau, for an ice house measuring about thirty-seven feet by sixty feet, without any warranty as to the exact measurement of the property hereby leased.

All of which the said Lessee doth declare to have a perfect knowledge, having seen and visited the same, and is content and satisfied therewith.

To have and to hold the said premises hereby leased and demised, or intended so to be, unto the said Lessee his heirs, executors or curators, without let or hindrance for and during the said term, subject to his enjoyment thereof "en bon père de famille," and to the maintenance of the house on said lot in all small and internal repairs for which tenants are by law responsible, the said Lessor being holden to keep and maintain the house on said lots "clos et couverts" and in all "grosses réparations" according to law, also subject by the said Lessee to the observance of the "voyerie" and all rules and regulations of the Police, the City of Quebec, the Board of Health, and other constituted authorities, which may in any manner concern the said premises; that he shall not sublease or underlet the said premises or any part thereof without written permission in writing from the said Lessor; and that he shall and will, on the end and expiration of the present lease, and without any previous notice to that end, peaceably and quietly surrender and deliver up the said premises in as good order and repairs as the same may have been at the commencement of the present lease, reasonable allowance being made for wear and accidents by fire, and other fortuitous causes and events excepted, notwithstanding any presumption in law in favour of the Lessor in relation thereto.

The present lease is thus made and granted for and in consideration of the following rents or annual amounts, that is to say, 1. The sum of Three hundred and fifty dollars for the first year (expiring on the Thirtieth of April 1910) of the present lease, one half of which or the sum of One hundred and seventy-five dollars, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell, acting as aforesaid or the bearer of these presents on the Second of July next (1909

and the remaining half or a like sum on the Second of January following (1910), 2. The sum of Three hundred and seventy-five dollars for the second year of the present lease (expiring on the Thirtieth of April 1911) one half of which or the sum of one hundred and eighty seven dollars and fifty cents, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell acting as aforesaid or the bearer of these presents on the Second of July nineteen hundred and ten, and the remaining half or a like sum, on the second of January following (1911), 3. The sum of Four hundred dollars for the third year of the present lease (expiring on the Thirtieth of April 1912), one half of which or the sum of Two hundred dollars, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell acting as aforesaid or the bearer of these presents on the Second of July nineteen hundred and eleven, and the balance or a like sum, on the Second of January following (1912). The said rents shall include all taxes, dues and assessments in each of the current years thereof.

Should the said Lessee fail to pay the rent on any of the above stipulated dates when it shall become due as aforesaid, then and in that case the said Lessor shall have the right forthwith of cancelling and resiliating the present lease and of entering into and taking possession of the premises hereby leased.

It is further agreed that the said Lessor shall at all times have the right of cancelling the present lease by giving six months clear notice in writing unto the said Lessee, of his intention so to do, in which case the said Lessee hereby agrees to vacate the said premises so soon as the said period of six months shall have expired.

And it is further and lastly agreed by and between the said parties that the said Lessor shall and will have the right and liberty of causing to be made any repairs or ameliorations to the said premises that may be found necessary during the said term, without being liable to damages or any deduction from the rent aforesaid. And for any execution of these presents the said Lessee hath made election of domicile irrevocable at the premises above leased and the said Lessor at the office in Quebec of her said Attorney.

Thus done and passed at the said City of Quebec, these presents recorded in the office of me the said Notary, under the number Six thousand nine hundred and fourteen.

In witness whereof the said parties have signed these presents with me the said Notary, the same being first duly read according to law.

Signed) Alfred C. Dobell, *Attorney*
" Adolphe Chevalier
" W. Nobel Campbell, *Not. Pub.*

A true copy of the orginial remaining of record in my office.

(*Signed*) W. N. Campbell, *Not. Pub.*

N. T. R.

INVESTIGATING COMMISSION

Exhibit 35

(See Page 119 of Report)

In the year One Thousand nine hundred and eleven, on the twenty-sixth day of August, before the undersigned JOSEPH ALLAIRE, Notary Public, for the Province of Quebec, residing in the City of Quebec, DID APPEAR:

Mr. ADOLPHE CHEVALIER, ship-carpenter, of the City of Quebec.

Who has, by these presents, sold with guarantee against all mortgages and all troubles whatever to Mr. Raoul Rene Bergevin, merchant of the said City of Quebec, herewith present and accepting, vendee, that is to say:

All his rights and interests whatsoever in the occupation of a certain lot of land and cove known and designated upon the official plan and book of reference for Champlain Ward of the City of Quebec under the number Two thousand five hundred and twenty-five (2525) and all the damages resulting and caused by the expropriation by the Transcontinental, save and except that portion of the said lot now occupied by N. Martineau, junior, for an ice-house, measuring about thirty-seven feet by sixty feet, without any warranty as to the exact measurement of the lot above mentioned.

The said rights and interests in the occupation of the said lot belong to the vendor in virtue of a lease to him consented by Alfred Curzon Dobell, acting in his capacity of attorney of the Duchess of Bassano, of the City of Paris, France under a power of attorney executed before witness at Paris aforesaid, on the Twenty-eighth day of March, nineteen hundred and six, and passed, the said lease, before W. Noble Campbell, notary, at Quebec, on the first of October, in the year One Thousand nine hundred and eight.

It is agreed that the said Vendor shall give possession of the said lot the First of May next to the said vendee, and that he, the said vendor, shall pay until the said first of May next, the municipal and school taxes and other public contributions affecting the property, as well as the rent to the lessor mentioned in the aforesaid lease, due and to become due or by reason of his occupation of the property up to the First of May next.

This sale is made for the price of four thousand dollars ($4,000.00) which the vendor has acknowledged to have received from the vendee, upon the execution of the presents, of which receipt in full.

DONE AND PASSED at Quebec, in the office of Joseph Allaire, Notary, on the day and in the month and year aforesaid, under the number fifteen thousand three hundred and fifteen of the minutes of the said Joseph Allaire and, after its reading, the parties have signed in the presence of the said notary.

(*Signed*) "ADOLPHE CHEVALIER"
" "RAOUL R. BERGEVIN"
" "JOSEPH ALLAIRE, N. P."

A true copy of the minute remaining in my office.

JOS. ALLAIRE, N. P.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 36

(See Page 119 of Report)

In the Year One Thousand Nine Hundred and Eleven, on tenth day of the month of October.

Before Charles Edmond Taschereau, Notary Public for the Province of Quebec, residing and practising in the City of Quebec.

Appeared:—

Mr. Raoul R. Bergevin, of the City of Quebec, Merchant Tailor,

Party of the one part, and the Commissioners of the Transcontinental Railway, a body politic duly incorporated, having its head office in the city of Ottawa, in the Province of Ontario, and here represented by the Honourable S. N. Parent, its President, duly authorized,

Parties of the other part.

And the said parties have made between themselves the following stipulations and declarations, that is to say:—

Whereas the said parties of the other part, for the ends of their railway line, require the demolition of a Graving Dock belonging to the said party of the one part situate upon the lot number two thousand five hundred and twenty-five (2525) on the official plan and book of reference of the cadastre for Champlain Ward, in the City of Quebec, which is the property of the said R. R. Bergevin, he having purchased it from Adolphe Chevalier, by deed of the twenty-sixth day of August, 1911, before Jos. Allaire, N.P.;

Whereas, moreover, that the said party of the one part is ready, in consideration of a certain indemnity to remove the said Graving Dock;

Therefore the presents bear evidence that the said party of the one part in consideration of the sum of four thousand two hundred and fifty dollars ($4,250.00) which he acknowledges to have received from the said parties of the other part, upon the execution of the presents, gives the latter a full and final receipt for the damages caused him by the demolition of the said Graving Dock and by its removal.

DONE AND PASSED at Quebec, on the day and in the year aforesaid, under the number six thousand one hundred and sixty-two of the minutes of the said C. E. Taschereau.

In Witness Whereof, the parties have signed with the said Notary, after the same being read.

(Signed) "S. N. PARENT."
" "RAOUL R. BERGEVIN."
" "C. E. TASCHEREAU, N.P."

A true copy of the minute remaining of record in my office.

(Signed) C. E. TASCHEREAU, N.P.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

To A. E. Doucet, on % of Right-of-Way, Dr.

Raoul R. Bergevin,
Quebec City.

1911–12.

1911

Oct. 3 For Compensation for demolition of Graving Dock-Cadastral No. 2525, Champlain Ward, City of Quebec..... $4,250.00

$4,250.00

Correct:
5 Oct., 1911.
A. Tremblay.

Date Oct. 6th, 1911.

. RECEIVED from the Commissioners of the Transcontinental Railway the sum of FOUR THOUSAND TWO HUNDRED AND FIFTY DOLLARS, in full settlement of the above account,

RAOUL R. BERGEVIN.

Correct.
D. Hoctor,
Chief Accountant.

Approved by Board.
Oct. 4, 1911.
P. E. Ryan,
Secretary.

No. 137,693. This deed of Acte d'Accord was entered and registered in the Registry Office for the Registration Division of Quebec, at forty minutes past two o'clock p.m., on the twentieth day of the month of October, nineteen hundred and eleven, under the number One hundred and thirty-seven thousand six hundred and ninety-three, R vol. 253, page 68.

Rémillard & Roy,
Dep.-Registrar.

N. T. R.

INVESTIGATING COMMISSION

Exhibit 37

(See Pages 551 to 598 of Report)

On the 17th of February, in the year of our Lord one thousand nine hundred and nine.

Before me Alfred C. Dobell the undersigned witness personally appeared, Adolph Chevalier, of the City of Quebec, laborer; who acknowledged and confessed to have demised and leased and by these presents do demise and lease for the space of three years to be computed from 1st January 1909 and which will end on the 1st day of January 1912 unto J. B. Fradette of the city of Quebec, ice Merchant, hereto present, that is to say a piece of land m asuring forty five by ninety-six feet together with a piece of land of thirty feet by sixteen feet on the property already leased by the said Adolphe Chevalier from Duchess Bassano, the whole of the land being a part of that lot known on the Cadastral plan and in the book of reference thereto for Champlain Ward in the City of Quebec under number two thousand five hundred and twenty five (2525) no warranty as to exact measurement, whereof the lessee is content and satisfied.

During all which the said lessor does hereby promise and engage to cause the said lessee to enjoy the said premises peaceably and quietly, save and except by giving a six months notice at the expiration of which the lease shall expire.

And the said lessee does hereby promise and engage to submit and conform to all regulations of Police in regard to the said premises, now in force or which be hereafter established by competent authority, for maintaining the cleanliness of the City, and of the streets, Lanes, Yards, and Houses built therein, not to make over or sub-let his right to the present lease without the consent in writing of the Lessor, and to surrender the said premises at the expiration of the present lease without any previous notice to quit being required, or to quit at the expiration of six months after receiving notice to that effect.

The present lease is thus made for and in consideration of the sum of Ten hundred and twenty five dollars current money of this Province per year making a total of four hundred and twenty five dollars current money as aforesaid, payable by the Lessee to the said Adolph Chevalier, the first instalment of seventy five dollars to be paid on the first of May 1909 and similar payments to be made on the same date of each year during the present lease and another instalment of fifty dollars current money as aforesaid to be paid on the 1st September 1909 and each subsequent year during the present lease, should the Lessor take advantage of his rights to terminate the present lease before the end of three years then the lessee shall pay the balance due within three months from the date of receiving notice to quit the premises.

And for the due execution of these presents, the said parties have made election of domicile irrevocable to wit the Lessor at his house in Champlain street in the City of Quebec where payment shall be made and the lessee on the premises hereby leased.

Done and passed at the city of Quebec, and signed by the said Parties, these presents having been first duly read.

(*Signed*) Adolphe Chevalier.
(*Signed*) J. B. Fradette,
Witness (*Signed*) Alfred C. Dobell

Lease mentioned in a deed of sale by J. B. Fradette, Esq., to Jules Grenier, Esq., before the undersigned Notary, on the Second day of the month of October, in the year One thousand nine hundred and ten, under number four hundred and fifty of his minutes.

(*Signed*) "J. B. FRADETTE,"
" "JULES GRENIER,"
" "ADOLPHE CHEVALIER,"
" "ALFRED C. DOBELL,"
" "Chas. J. BAILLARGEON, N. P."

A true certified copy.

CHAS. J. BAILLARGEON, N. P.

———

Before Charles Jules Baillargeon, Notary Public, residing and practising at Quebec,

APPEARED:—

Mr. Jean Baptiste Fradet, of the City of Quebec, former Ice Dealer.

Who by these presents has sold with all guarantee of right to Mr. Jules Grenier, of the Parish of Beauport, Joiner, herewith present and acceptor.

A building erected of wood, covered with tar-paper and used as an ice-house, forty feet wide by ninety feet long, located on the old Denning Yard.

Champlain Ward, in the City of Quebec, on a part of lot No. Two thousand five hundred and twenty five (2525) in the Official Cadastre of the said Ward, with besides all tools to cut ice and others having served the said Fradet for the operation of said ice-house, as enumerated on the list annexed to the presents as being part of it after it has been acknowledged and signed by the parties.

In addition to this, the said Fradet gives to the said J. Grenier all his rights as lessor of the land on which is erected the said ice-house; the said rights are specified by private deed made between the said Fradet and Mr. Adolphe Chevalier, of the City of Quebec, Laborer, dated the seventeenth February 1909, signed in presence of Mr. Alfred C. Dobell; the said Grenier agreeing on his side to all conditions, restrictions and rent of the said lease. Copy of the said lease is also annexed to the minutes of the presents after it had been acknowledged and signed by the parties.

The present sale is made on the following conditions:—

1. The said Grenier will pay from date of the presents all taxes and costs which might be imposed on the said ice-house or to which he might be bound in consequence of the said lease and also, from the date of the presents, the rent agreed upon in the lease dated the seventeenth of February 1909.

2. In case that, during the first year of the presents, the said J. Grenier would abandon ice trade by selling or otherwise, he will be bound to remit to the said Fradet all the tools bought from him as indicated in the annexed list. After the first year is passed, whatever happens, the said J. Grenier will be released from this obligation.

The said J. B. Fradet also sells to the said J. Grenier, acceptant, the following vehicles:—A vehicle called express, two vehicles called ice wagons, and three sleighs.

The present sale is made for and in consideration of the price and sum of eight hundred and five dollars ($805.), six hundred dollars ($600.) for the ice-house and two hundred and five dollars ($205) for the said vehicles.

The said selling price is payable as follows:—One hundred and fifty dollars ($150.) cash, receipt whereof is hereby acknowledged; Four hundred dollars ($400.) to be applied to the payment of a note due by the said J. B. Fradet to Mr. Antoine Gagnon, of Quebec, that the said purchaser promises and acknowledges

to pay when due, and the balance Two hundred and fifty five dollars ($255.) in four payments;—1, Fifty dollars ($50.00) on the fifteenth of July nineteen hundred and ten; 2, Fifty ($50) on the fifteenth of October nineteen hundred and ten; 3, Fifty ($50) on the fifteenth of January nineteen hundred and eleven; 4, Hundred and five dollars ($105.) on the fifteenth of July 1911. The said purchaser has signed in favour of the said vendor four notes representing each one of the payments hereinbefore mentioned, the said notes bearing interest at three per cent per annum.

Messrs. Alfred C. Dobell, Advocate, and Adolphe Chevalier, Contractor, both of Quebec have agreed to these presents; both declare after perusal of these presents, one as owner of the hereinbefore mentioned land and the other as lessor, that they agree to accept the said J. Grenier as subtenant of the said land in the stead and place of the said Jean B. Fradet, and bind themselves to continue in favour of the said J. Grenier on the same conditions, restrictions and rent the lease dated the 17th February 1909.

Made and passed at Quebec for the said H. B. Fradet the thirty-first day of December one thousand nine hundred and nine, for the said Jules Grenier the seventh day of January one thousand nine hundred and ten and for the said Alfred C. Dobell the twelfth day of October one thousand nine hundred and ten under number four hundred and fifty of the minutes of said notary.

In testimony whereof, the parties herein concerned have signed with said Notary after due reading.

(*Sgd.*) "J. B. Fradette"
" "Jules Grenier"
" "Adolphe Chevalier"
" "Alfred C. Dobell"
" "Chas. J. Baillargeon"

True copy of the minute deposited of record in my office.

Chas. J. Baillargeon.

———

In the year One thousand nine hundred and eleven, on the Thirtieth day of the month of September.

Before Charles Edward Taschereau, Notary Public for the Province of Quebec, residing and practising in the City of Quebec.

Did appear:—

Mr. Jules Grenier, of the city of Quebec, ice dealer

Party of the one part

And the Commissioners of the Transcontinental Railway, a body politic duly incorporated, having its head office in the city of Ottawa, in the Province of Ontario, and here represented by the Honourable Simon Napoleon Parent, its president, duly authorized to the purpose of these presents,

Parties of the other part.

And the said parties have made between themselves the following declarations and stipulations, that is to say:—

Whereas the said party of the one part is the owner of an Ice-House built upon the lot number Two thousand five hundred and twenty-five (2525) upon the official plan and book of reference of the cadastre for Champlain Ward of the city of Quebec;

Whereas, moreover, that on account of the construction of the Transcontinental railway through the said lot, the said ice-house must be removed;

Whereas, lastly, that the said party of the one part is ready to accept an indemnity as a compensation for the damages caused him by the demolition of the said ice-house;

Therefore, the presents bear evidence that the said party of the one part, in consideration of the sum of Two thousand five hundred dollars (2,500.00) which he acknowledges to have received from the said parties of the other part, upon the execution of the presents, hereby gives the latter a full and final receipt for all the damages caused him on account of the demolition of the said ice-house, and the said party of the one part further pledges himself to demolish the said ice-house at his own expense between now and the first day of December next, and he may keep the materials of the said building.

At these presents have also appeared:—

Mr. THOMAS GAGNON, acting at the presents as sole representative of "Gagnon & Frère,"

WHO, after having had communication of the present deed, declared himself satisfied and consented that it be executed according to its form and purport.

The present ratification is thus agreed by which the said Jules Grenier has agreed to a guarantee sale (dotière) in payment to the appearing for the said ice-house according to the terms of a deed passed before Jos. Allaire, Notary, on the second day of November, 1909, and registered at Quebec, under number 130216.

DONE AND PASSED at Quebec, on the day and in the year aforesaid, under number six thousand one hundred and fifty-four of the minutes of the said C. E. Taschereau.

In WITNESS WHEREOF, the parties have signed with the said Notary, after the same being read.

(Signed) "S. N. PARENT."
" "THOS. GAGNON."
" "JULES GRENIER."
" "C. E. TASCHEREAU, N.P."

A true copy of the minute remaining of record in my office.

(Signed) C. E. TASCHEREAU,
N.P.

(VOUCHER.)

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

To A. E. DOUCET, on % of Right-of-Way,

DR.

JULES GRENIER,
Quebec.

1911-12.

1911
Sept. 23 For compensation for removal of Ice House, and damages—Cadastral No. 2525, Champlain Ward, City of Quebec, Province of Quebec.... $2,500.00 $2,500.00

Correct,
28 Sept., 1911.
(Sgd.) A. TREMBLAY.

Date, Sept. 30th, 1911. RECEIVED FROM The Commissioners of the Transcontinental Railway the sum of Two Thousand Five Hundred..... .....Dollars, in full settlement of the above account.

(Sgd.) JULES GRENIER.

Correct,

D, HOCTOR.
Chief Accountant.

Approved by Board,
Sept. 26, 1911,

P. E. RYAN,
Secretary.

No. 137512. This Deed of Acte d' Accord was entered and registered in the Registry Office for the Registration Division of Quebec, at ten minutes past two o'clock p.m., on the third day October, nineteen hundred and eleven, as number one hundred and thirty thousand five hundred and twelve, in Vol. 253, page 58.

(Sgd). REMILLARD & ROY,
Dep. Registrar.

IN THE YEAR ONE THOUSAND NINE HUNDRED AND ELEVEN, on the second day of the month of October.

BEFORE CHARLES EDMUND TASCHEREAU, Notary Public for the Province of Quebec, residing and practising in the City of Quebec,

APPEARED:—

MR. RAOUL R. BERGEVIN, of the City of Quebec, merchant tailor,

PARTY OF THE ONE PART,,

AND THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY, a body politic duly incorporated, having its head-office in the City of Ottawa, in the Province of Ontario, and here represented by the Honourable S. N. Parent, its President, duly authorized,

PARTIES OF THE OTHER PART.

And the said parties have made between themselves the following declarations and stipulations, that is to say:—

Whereas the said parties of the other part, for the ends of their railway line, require the demolition of a certain ice-house belonging to the said party of the one part, and situate on the lot number Two thousand four hundred and sixteen (2416) on the official plan and book of reference of the cadastre for Champlain Ward, in the City of Quebec;

Whereas, moreover, that the said party of the one part is ready, in consideration of a certain indemnity, to consent to the demolition of the said ice-house;

Therefore the presents bear evidence that the said party of the one part in consideration of the sum of Two thousand five hundred dollars ($2,500.00) which he acknowledges to have received from the said parties of the other part, upon the execution of the presents, gives the latter a full and final receipt for the damages caused him by the demolition of the said Ice-House.

DONE AND PASSED at Quebec, on the day and in the year aforesaid, under the number six thousand one hundred and fifty-nine of the minutes of the said C. E. Taschereau.

IN WITNESS WHEREOF, the parties have signed with the said Notary, after the same being read.

(Signed) "S. N. Parent."
" "RAOUL R. BERGEVIN."
" "C. E. TASCHEREAU, N.P."

A true copy of the minute remaining of record in any office.

(Signed) C. E. TASCHEREAU, N.P.

THE COMMISSIONERS OF THE TRANSCONTINENTAL RAILWAY.

To A. E. Doucet, on % of Right-of-way, Dr.

Raoul R. Bergevin,
Quebec City. 1911–12.

1911

Sept. 28 For compensation for removal of Ice House, and damages—Cadastral No. 2416, Champlain Ward, Quebec City.....$2,500.00 $2,500.00

Correct,
2 Oct., 1911.
A. Tremblay.

Date Oct. 2nd, 1911. RECEIVED from the Commissioners of the Transcontinental Railway the sum of TWO THOUSAND FIVE HUNDRED DOLLARS in full settlement of the above account.

Raoul R. Bergevin.

Correct,
D. Hoctor,
Chief Accountant.

Approved by Board,
Sept. 29, 1911,
P. E. Ryan,
Secretary.

No. 137,694. This deed of Acte d'Accord was entered and registered in the Registry Office for the Registration Division of Quebec, at forty minutes past two o'clock, p.m., on the twentieth day of the month of October, nineteen hundred and eleven, under the number One hundred and thirty-seven thousand six hundred and ninety-four, B. vol. 253, page 69.

Remillard & Roy,
Dep.-Registrar

On the seventh day of December in the year of Our Lord one thousand nine hundred and eight. Before me Alfred C. Dobell the undersigned witness personally appeared:

Adolph Chevalier of the City of Quebec, labourer:

Who acknowledged and confessed to have demised and leased, and by these presents do demise and lease for the space of three years, to be computed from the 1st May, 1909, and which will end on the 1st day of May, 1912, unto Napoleon Martineau, Junior, of the City of Quebec, ice merchant, hereto present, that is to say, a piece of land measuring forty five feet by fifty feet on the east side of the ice house built on the property already leased by the said Napoleon Martineau from Duchess Bassano, the whole of the land being part of that lot known on the Cadastral plan and in the book of reference thereto for Champlain Ward in the City of Quebec under number two thousand five hundred and twenty five (2525) no warranty as to exact measurement, whereof the Lessee is content and satisfied.

During all which the said Lessor does hereby promise and engage to cause the said Lessee to enjoy the said premises peaceably and quietly, save and except by giving a six months notice at the expiration of which the lease shall expire.

And the said Lessee does hereby promise and engage to submit and conform to all regulations of Police in regard to the said premises, now in force or which be hereafter established by competent authority, for maintaining the cleanliness of the City, and of the streets, lanes, yards and houses therein; not to make over or sub-let his r ght to the present lease without the consent in writing of the Lessor, and to surrender the said premises at the expiration of the present lease without any previous notice to quit being required, or to quit at the expiration of six months after receiving notice to that effect.

The present lease is thus made for and in consideration of the sum of one hundred and fifty dollars current money in three equal payments, the first payment to be made on the first of May, 1909, of the sum of fifty dollars, the other two payments to be made on the first of May, 1910 and 1911, of the sum of fifty dollars each; should the Lessor take advantage of his right to terminate the present lease before the end of three years then the Lessee shall pay the balance due within three months from the date of receiving notice to quit the premises.

And for the due execution of these presents, the said parties have made election of domicile irrevocable to wit: the Lessor at his house in Champlain Street in the City of Quebec, where payment shall be made and the Lessee on the premises hereby leased.

Done and passed at the City of Quebec, and signed by the said parties these presents having been first duly read.

Adolphe Chevalier,
N. Martineau, Jr.

Alfred C. Dobell,
Witness.

On this day the first of October in the year one thousand nine hundred and eight.

Before me the undersigned William Noble Campbell, Notary Public for the Province of Quebec in Canada, residing and practising in the City of Quebec.

Personally came and appeared Alfred Curzon Dobell, of the said City of Quebec, Advocate, acting herein in his capacity of the duly appointed Attorney of the Duchess of Bassano of the City of Paris in the Republic of France under her Power of Attorney executed before witnesses at Paris aforesaid on the twenty-eighth of March nineteen hundred and six, who in the presence of me, the said Notary, did and by these presents doth lease and demise for the space and term of three years to begin and be computed from the first day of May next (1909) and fully to be completed and ended on the thirtieth day of April in the year one thousand nine hundred and twelve, unto Adolphe Chevalier, of the said City of Quebec, ship carpenter, also present and accepting hereof for himself, his heirs and assigns, as follows, that is to say:

That certain lot of land or cove and premises now known and designated upon the plan and in the book of reference thereto of the Cadastre for Champlain Ward of the said City of Quebec under the number two thousand five hundred and twenty-five (2525) together with the buildings thereon circumstances and dependencies, save and except that portion of the said lot now occupied by N. Martineau, Junior, for an ice-house measuring about thirty-seven feet by sixty feet, without any warranty as to the exact measurement of the property hereby leased.

And of all which the said Lessee doth declare to have a perfect knowledge, having seen and visited the same, and is content and satisfied therewith.

To have and to hold the said premises hereby leased and demised, or intended so to be, unto the said Lessee his heirs, executors or curators, without let or hindrance for and during the said term, subject to his enjoyment thereof "en bon père de famille," and to the maintenance of the house on said lot in all small and internal repairs for which tenants are by law responsible, the said Lessor being holden to keep and maintain the house on said lot "clos et couverts" and in all "grosses reparations" according to law, also subject by the said Lessee to the observance of the "voyerie" and all rules and regulations of the Police, the City of Quebec the Board of Health and other constituted authorities, which may in any manner concern the said premises; that he shall not sublease or underlet the said premises or any part thereof without permission in writing from the said Lessor; and that he shall and will, on the end and expiration of the present lease, and without any previous notice to that end, peaceably and quietly surrender and deliver up the said premises in as good order and repair as the same may have been at the commencement of the present lease, reasonable allowance being made for wear and accidents by fire, and other fortuitous causes and events excepted, notwithstanding any presumption in law in favour of the Lessor in relation thereto.

The present lease is thus made and granted for and in consideration of the following rents or annual amounts, that is to say, 1. The sum of three hundred and fifty dollars for the first year (expiring on the thirtieth of April (1910) of the present lease, one half of which or the sum of one hundred and seventy-five dollars, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell acting as aforesaid or the bearer of these presents on the second of July next (1909) and the remaining half or a like sum, on the second of January following (1910), 2. The sum of three hundred and seventy-five dollars for the second year of the present lease (expiring on the thirtieth of April, 1911) one half of which or the sum of one hundred and eighty-seven dollars and fifty cents, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell acting as aforesaid or the bearer of these presents on the second of July, nineteen hundred and ten, and the remaining half or a like sum, on the second of January following (1911). 3. The sum of four hundred dollars for the third year of the present lease (expiring on the thirtieth of April, 1912), one half of which or the sum of two hundred dollars, the said Lessee doth hereby bind himself to pay unto the said Alfred C. Dobell, acting as aforesaid or the bearer of these presents on the second of July, nineteen hundred and eleven, and the balance or a like sum, on the second of January following (1912). The said rents shall include all taxes, dues and assessments in each of the current years thereof.

Should the said Lessee fail to pay the rent on any of the above stipulated dates when it shall become due as aforesaid, then and in that case the said Lessor shall have the right forthwith of cancelling and resiliating the present lease and of entering into and taking possession of the premises hereby leased.

It is further agreed that the said Lessor shall at all times have the right of cancelling the present lease by giving six months clear notice in writing unto the said Lessee of his intention so to do, in which case the said Lessee hereby agrees to vacate the said premises so soon as the said period of six months shall have expired.

And it is further and lastly agreed by and between the said parties that the said Lessor shall and will have the right and liberty of causing to be made any repairs or ameliorations to the said premises that may be found necessary during the said term, without being liable to damages or any deduction from the rent aforesaid. And for any execution of these presents the said Lessee hath made election of domicile irrevocable at the premises above leased and the said Lessor at the office in Quebec of her said Attorney.

Thus done and passed at the said City of Quebec, these presents recorded in the office of me, the said Notary, under the number six thousand nine hundred and fourteen.

In witness whereof the said parties have signed these presents with me the said Notary, the same being first duly read according to law.

(Signed) ALFRED C. DOBELL, Attorney.
ADOLPHE CHEVALIER.
W. NOBLE CAMPBELL, Not. Pub.

A true copy of the original hereof remaining of record in my office.

W. NOBLE CAMPBELL,
Not. Pub.

IN THE YEAR ONE THOUSAND NINE HUNDRED AND ELEVEN, on the Twentieth day of September, before Joseph Allaire, Notary Public, for the Province of Quebec, residing in the city of Quebec, undersigned:

APPEARED:—

MRS. MARGUERITE LEBEL, of the city of Quebec, widow of Thomas Chevalier, in his life-time, a boat-man.

Who has, by these presents, sold with warranty against all seizures and claims whatsoever, to Mr. Raoul R. Bergevin, merchant, of the city of Quebec, here present and acc pting, vendee, that is to say.

All her rights of property, claims and interests she has on a slip and all its appurtenances presently situated on the lot of land known under the number Two thousand five hundred and twenty-five (2525) of the official Cadastre of Champlain Ward of the city of Quebec.

The said slip and its appurtenances belong to the said Mrs. Chevalier, widow, as the residuary legatee of the property of the said late Thomas Chevalier, her husband, by virtue of the latter's will received before Louis Parant, Notary, on the tenth day of January, nineteen hundred and eight.

For the said Raoul R. Bergevin to acquire, en oy do and dispose of the said slip and its appurtenances in full and entire possession from this day and always and with immediate possession, the said lady vendor making by these same presents the real delivery of the said slip and its appurtenances.

The present sale is made for the sum of five hundred dollars ($500.00) which the said vendor acknowledges and confesses to have received from the said vendee to her full satisfaction, receipt whereof.

DONE AND PASSED at Quebec, in the office of the said Jos. Allaire, Notary, on the day and in the month and year aforesaid, under the number fifteen thousand three hundred and forth-six of the minutes of the undersigned notary, and after the same being read, the vendor declared she could not sign in presence of Joseph Chevalier, carpenter, of this city, witness required and who has signed in presence of the said notary and of the said vendee.

(*Signed*) "JOSEPH CHEVALIER"
" "RAOUL R. BERGEVIN"
" "JOS. ALLAIRE, N. P."

A true copy of the minute remaining in my office.

JOS. ALLAIRE, N. P.

In the year one thousand nine hundred and eleven, on the Eleventh of October.

Before Louis Parant, Notary Public for the Province of Quebec, residing and practising in the city of Quebec, undersigned.

Appeared Mr. Raoul Bergevin, mechant, of the city of Quebec;

Who has, by these presents, reconveyed, with warranty, to Mrs. Marguerite LeBel, of the said city of Quebec, widow of Thomas Chevalier, in his life time also of Quebec, boat-man, here present and accepting, transferee, that is to say:

All his rights of property, claims and interests which he has upon a slip and its appurtenances, presently situate on the lot of land known under the number Two thousand five hundred and twenty five (2525) of the official Cadastre of Champlain Ward of the city of Quebec.

The said slip and its appurtenances belong to the said Raoul R. Bergevin by his having purchased them from the said Mrs. Chevalier as shown by a deed of sale agreed to by the said Mrs. Chevalier in favour of the said Mr. Bergevin, before Joseph Allaire, Notary, at Quebec, on the twentieth day of September, one thousand nine hundred and eleven last.

For the said Mrs. Thomas Chevalier, widow, to enjoy, do and dispose of the said slip and its appurtenances in full and entire property from this day and always, just as if she had never sold them to the said Raoul R. Bergevin, and with immediate possession in favour of the said Mrs. Chevalier, the said vendor reconveying to her by these same presents the real delivery of the said slip and its appurtenances.

The present retrocession is made for the sum of five hundred dollars ($500.00) which the said Mrs. Bergevin acknowledges and confesses to have received, this day, from the said vendee to his entire satisfaction, receipt whereof.

Done and passed at Quebec, under the number one thousand two hundred and eighty-six of the minutes of the said Louis Parant.

In witness whereof, the said Mr. Bergevin has signed with the said Notary, the said Mrs. Chevalier, being required to do so, declared she could not sign, in the presence of Arthur Belanger, of Quebec, advocate, who has signed as a witness with the said Notary, after the same being read.

(*Signed*) "Arth. Belanger"
" "Raoul. R. Bergevin"
" "Louis Parant, N. P."

A true copy of the minute remaining in my office.

Louis Parant, N. P.

In the year one thousand nine hundred and eleven, on the Eleventh of October.

Before Louis Parant, Notary public for the Province of Quebec, residing and practising at Quebec, undersigned:

Appeared Mrs. Marguerite LeBel, of the city of Quebec, widow of Thomas Chevalier, in his life-time also of Quebec, Boatman.

Who has, by these presents, sold with all ordinary guarantees and of right, to Mr. Adolphe Chevalier, of the said city of Quebec, Contractor, here present and accepting, vendee, that is to say:—

All her rights of property, claims and interests, which she has on a slip and its appurtenances, presently si uated on the lot of land known under the number Two thousand five hundred and twenty-five (2525) of the official Cadastre of Champlain Ward of the City of Quebec.

The said slip and its appurtenances belonging to the said Mrs. Chevalier by virtue of good and legal titles.

For the said Mr. Adolphe Chevalier to enjoy, do and dispose of the said slip and its appurtenances in full and entire property from this day and always with immediate possession, the said Mrs. Chevalier transferring to him by these same presents the real delivery of the said slip and its appurtenances.

The present sale is made for the sum of four hundred dollars ($400.00) which the said Mrs. Chevalier acknowledges and confesses to have received, this day, from the said vendee to her full satisfaction, receipt whereof.

Done and passed at Quebec, under the number one thousand two hundred and eighty-seven of the minutes of the said Louis Parant.

In witness whereof the said Mr. Adolphe Chevalier has signed with the said notary, the said Mrs. Chevalier, required to do so, has declared that she could not sign, in the presence of Arthur Doré, of Quebec, labourer, who has signed as a witness, with the said notary, after the same thing being read.

(*Signed*) "Arthur Dore."
" "Adolphe Chevalier."
" "Louis Parant, N. P."

A true copy of the minutes remaining in my office.

Louis Parent, N. P.

———

Quebec, July 26th, 1911.

Adolphe Chevalier, Esq.,
Grand Union Hotel,
Ottawa.

Dear Sir:—

I send you to-night a telegram asking you to call me up by telephone; I have something important to tell you before you see your man. It is preferable to call me either at my private residence, 3083, or at my office, 1951. When you return to Quebec, please come and see me as I have a cheque for you and what I have to tell you is most important.

Yours truly,

O. Morency.

Mr. Scott, one of our valuators, is of opinion that the estimate of $3,000.00 for damages to Chevalier Ship repairing plant is insufficient. Chevalier repairs a great number of vessels there every year and he says that his profits amount to $4,500.00 per annum. This may be an exaggeration but he will be deprived of his business and $6,000.00 would not seem to be an excessive compensation.

La Marquise de Bassano	$59,764.94
Grenier	3,231.36
Martineau	3,703.52

T.D. Form 1B.

Canadian Pacific Railway Company's Telegraph.

Quebec, 26th July, 1911.

a267 ra fe x 6

Adolphe Chevalier,

Care Grand Union Hotel, Ottawa, Ont. Please call me on phone immediately.

O. Morency.

5.46 p.m.

On the seventh day of December in the year of Our Lord one thousand nine hundred and eight. Before me, Alfred C. Dobell the undersigned witness personally appeared

Adolph Chevalier of the City of Quebec, laborer.

Who acknowledged and confessed to have demised and leased, and by these presents do demise and lease for the space of three years may be computed from the 1st May, 1909, and which will end on the 1st day of May, 1912, until Napoleon Martineau, Junior, of the City of Quebec, Ice Merchant, hereto present, that is to say a piece of land measuring forty-five feet by fifty-five feet on the east side of the ice house built on the property already leased by the said Napoleon Martineau from Duchess Bassano, the whole of the land being part of that lot known on the Cadastral plan and in the book of reference thereto for Champlain Ward in the City of Quebec under number two thousand five hundred and twenty-five (2525) no warranty as to exact measurement, whereof the Lessee is content and satisfied.

During all which the said Lessor does hereby promise and engage to cause the said Lessee to enjoy the said premises peaceably and quietly, save and except by giving a six months notice at the expiration of which the lease shall expire.

And the said Lessee does hereby promise and engage to submit and conform to all regulations of Police in regard to the said premises, now in force or which be hereafter established by competent authority, for maintaining the cleanliness of the City, and of the streets, lanes yards and houses therein not to make over or sub-let his right to the present lease without the consent in writing of the Lessor, and to surrender the said premises at the expiration of the present lease without any previous notice to quit being required, or to quit at the expiration of six months after receiving notice to that effect.

The present lease is thus made for and in consideration of the sum of one hundred and fifty dollars current money in three equal payments, the first payment to be made on the first of May, 1909, of the sum of fifty dollars, the other two payments to be made on the first of May, 1910 and 1911 of the sum of fifty dollars each, should the Lessor take advantage of his right to terminate the present lease before the end of three years then the Lessee shall pay the balance due within three months from the date of receiving notice to quit the premises.

And for the due execution of these presents, the said parties have made election of domicile irrevocable, to wit: the Lessor at his house in Champlain Street, in the City of Quebec, where payment shall be made and the Lessee on the premises hereby leased.

Done and Passed at the City of Quebec, and signed by the said parties, these presents having been first duly read.

Adolphe Chevalier,
W. Martineau.

Alfred C. Dobell,
Witness.

This agreement witnesseth that Dame Mary Ann Lampson, widow of the late William Godfrey Wurtele, Esquire, Merchant, now deceased, Miss Caroline Lampson, Spinster, and Frederick Lampson, Esquire, Advocate, all of the City of Quebec, did and by these presents do demise and lease for the term of four years, to commence and be computed from the first day of October, one thousand nine hundred and eight, and fully to be completed and ended on the last day of September, one thousand nine hundred and twelve, unto Mr. Alfred Miller of the City of Quebec,

Carter and Ship Laborer hereunto also present and accepting hereof for himself, his Heirs and Assigns. That is to say: A Lot of Ground situated on, and adjoining the river side of Champlain Street at the place called *l'ans. dès Mères*, in the City of Quebec, being sixty feet, English measure in front on Champlain Street by forty feet also English measure in depth, said lot to commence from a point on Champlain Street forty five and a half feet from the south west corner of the house now occupied by Messrs. James O'Neill and A. P. Fortier (*No.* 555–57 *Champlain Street*) and to run thence in a south westerly direction along Champlain Street aforesaid, said lot of ground hereby leased forming part of Lot number Two thousand four hundred and sixteen (*No.* 2416) of the *Cadastre* for Champlain Ward of the City of Quebec, and with all which the said Lessee is content and satisfied, having seen and visited the same.

To HAVE AND TO HOLD the premises above described and leased with all and every the rights, privileges and appurtenances thereof unto the said Lessee, his Heirs and Assigns for and during the aforesaid term thereof, during all which time the Lessors do hereby promise and bind themselves to cause the said Lessee to enjoy the premises hereby leased peaceably and quietly, it being specially agreed that the said Lessors shall not be bound to make or cause to be made, any repairs whatsoever either *grosses* or *menues réparations* to the said premises, nor to keep the same wind or water tight.

And on his part the Lessee doth hereby promise and bind himself to use and enjoy the said premises hereby leased peaceably and quietly, *en bon père de famille*, to maintain the same in all repairs, to submit and conform to all rules and regulations of police with respect to the said premises, to cause the chimnies in the said premises to be regularly swept during the said term at cost and expense, not to assign or make over his rights to the present lease to any person or persons whomsoever or to sublet the premises hereby leased without the actual consent in writing of the said Lessors under pain of all costs losses and damages and of nullity of the present lease at the option of the Lessors; And finally to surrender the said premises at the expiration of the present lease without notice in good order and condition (reasonable wear and tear always excepted), It is also expressly understood and agreed that should the said Lessors, their Heirs or Assigns, at any time before the expiration of the present Lease sell or let the wharf or Yard of which the Lot of ground hereby leased forms part, they the said Lessors, their Heirs or Assigns shall have the right to terminate the present Lease, by giving to the said Lessee his Heirs or Assigns one month's notice in writing to that effect,—but without any indemnity whatever to be paid by the said Lessors, their Heirs or Assigns to the said Lessee his Heirs or Assigns, for any loss, damage or injury caused by such termination of the present Lease.

The present lease is thus made for and in consideration of the rent or sum of—sixty-six dollars and sixty-six cents (Assessments and Water Rates to be paid by the Lessee, including the proprietors' portion thereof which the said Lessee doth bind and oblige himself to pay to the Lessors or to their order on the first day of September in each year. Said assessments and taxes, including the proprietors' portion thereof as aforesaid, to be so paid by the said Lessee either to the City of Quebec, or to the Lessor, on or before the first day of December in each current Fiscal Year.

And for the due execution of these presents the said parties made election of their domiciles irrevocable, to wit, the Lessors at the actual residence of the said Frederick Lampson where, or at such other place in the City of Quebec as the said Lessors shall designate, the payments shall be made, and the Lessee on the premises hereby leased.

THUS DONE AND PASSED, in Duplicate, at the City of Quebec, on the twelfth day October one thousand nine hundred and eight.

20

In faith and testimony whereof the said parties have to these presents, first duly read according to Law, set and subscribed their names and signatures.

M. WURTELE.
CAROLINE LAMPSON
FREDK. LAMPSON.
ALFRED MILLER.

An additional piece of ground to enlarge the Ice House being 60 x 24 feet, was taken from the 1st December, 1909, at the same rent in proportion to size of ground making forty dollars a year payable on the 1st September each year.

Quebec, 23rd August, 1911.

FREDK. LAMPSON,
for Heirs WM. LAMPSON.
ALFRED MILLER.

To.....
.....
.....
of the.....of.....
.....
.....
and to all to whom these presents shall come or to whom the same may in any wise concern.

WHEREAS the lands shown upon and described in the annexed plan and description have under the provisions of The National Transcontinental Railway Act 3, Edward VII, Cap. 71, section 13, been taken by His Majesty the King, acting through "The Commissioners of the Transcontinental Railway" for the purposes of a public work known as the National Transcontinental Railway, the construction of which public work is under the charge and control of the said "The Commissioners of the Transcontinental Railway" by the depositing of record in the office of the Registrar of Deeds for the.....
of .....in the Province of Quebec
on the.....day of.....19....
of a duplicate of the said plan and description of the said lands.

AND WHEREAS no compensation money has yet been paid by or on behalf of His Majesty for the said lands.

AND WHEREAS the said lands have been found to be unnecessary for the purposes of the said public work and the undersigned have decided not to take the said lands for the purposes of the said Railway.

NOW, THEREFORE, pursuant to and by virtue of the provisions of section 23 of the Expropriation Act R. S. C. 1906, Cap. 143 and of section 207 of the Railway Act R. S. C. 1906, Cap. 37 and section 15 of the National Transcontinental Railway Act 3, Edward VII, Cap. 71 and in pursuance of any other authority in this behalf vested in the undersigned, the undersigned do hereby declare and notify you that the said lands are not required for the purposes of the said Railway and that the said lands and the proceedings aforesaid are hereby abandoned by the Crown and by the said "The Commissioners of the Transcontinental Railway."

IN WITNESS WHEREOF the Minister of Railways and Canals has hereunto set his hand and "The Commissioners of the Transcontinental Railway" have caused these presents to be executed and the corporate seal of the Commissioners to be affixed under the hand of the Commissioner and Secretary this..... day of.....1912.

Minister of Railways and Canals.

Exhibit referred to in evidence as No. 6 is large photograph of Skidway—on fyle with Investigating Commission.

N .T. R.

INVESTIGATING COMMISSION

Exhibit 40

Statement of Gravity Water Supplies.

(See Page 138 of Report)

N. T. R.

GRAVITY WATER SUPPLIES

Districts A. B. and F.—Statement showing cost, etc., and where saving might have been effected by use of pumps in place of gravity supplies (values capitalized at 4%)

Mileage	Location	Pump or Gravity	Dia. of Supply Pipe	Length of Pipe Line	Head to centre of tub.	Discharge per 24 hours	Maximum Consumption per 24 hrs.	Cost of Installation	Cost per 1,000 galls of water used	Cost of pump in lieu of Gravity	Cost per 1,000 galls pumped	Saving per annum	Saving	Remarks
11.0	.....	Gravity...	4". C.I.	4600'	19'	62,000	40,000	$7,659.90	2.1c					
40.0	Pangburn....	" ...	6". C.I.	10,606	5'	61,300	40,000	21,703.16	5.9c	$4,000.00	4.66c	.....	$17700.00	.....
56.5	Chipman.....	" ...	4". C.I.	8,100	44'	72,600	40,000	12,622.54	3.4c	.....	.....	.....	.....	.....
80.0	Bantalorum..	" ...	6". C.I.	6,768	25'	169,000	40,000	15,166.37	4.1c	.....	.....	.....	.....	Divisional Point
118.0	Napadogan...	" ...	4". C.I.	5040	56'	.....	125,000	11,885.71	1.04c	.....	.....	.....	.....	.....
146.0	Summit.....	" ...	6". C.I.	1,068	7'	129,000	40,000	2,191.67	0.6c	.....	.....	.....	.....	.....
159.0	Beaver Brook	" ...	6". C.I.	12,298	39'	156,400	40,000	22,326.13	6.1c	5,000.00	4.91c	.....	17,300.00	.....
177.0	Blue Bell....	" ...	6". C.I.	10,000	40'	175,400	40,000	17,526.88	4.8c	3,000.00	4.39c	.....	11,500.00	.....
205.6	St. Leonards.	" ...	6". C.I.	12,002	15'	101,400	40,000	22,725.62	6.2c	4,000.00	1.66c	.....	18,700.00	.....
252.0	Baker Lake..	" ...	4". C.I.	2,227	113'	220,000	40,000	6,783.32	1.8c	.....	.....	.....	.....	.....
B														
85.0	Roberge.....	" ...	6". C.I..	2,870	61'	.....	40,000	11,375.21	3.2c	.....	.....	.....	.....	.....
141.0	Ludger Noel..	" ...	6". C.I.	780	15'	.....	40,000	2,512.80	0.7c	.....	.....	.....	.....	.....
154.5	Lac-à-Shea...	" ...	6". C.I.	500	11'	.....	40,000	1,124.91	0.3c	.....	.....	.....	.....	.....
F														
19.0	Webster.....	" ...	.....	10,428	38'	.....	40,000	12,771.35	3.6c	.....	.....	.....	.....	.....
	Reddit.....	" ...	.....	3,220	21'	.....	125,000	13,015.31	1.2c	.....	.....	.....	.....	Divisional Point
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$68200.00	.....
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INTERNATIONAL CONVENTION

FOR THE

SAFETY OF HUMAN LIVES AT SEA

No. 129—1914

INTERNATIONAL CONVENTION FOR THE SAFETY OF HUMAN LIFE AT SEA.

CONVENTION

INTRODUCTION.

His Majesty, the German Emperor, King of Prussia, on behalf of the German Empire; His Majesty the Emperor of Austria, King of Bohemia and Apostolic King of Hungary; His Majesty the King of Belgium; His Majesty the King of Denmark; His Majesty the King of Spain; the President of the United States of America; the President of the French Republic; His Majesty the King of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the Seas, Emperor of India; His Majesty the King of Italy; His Majesty the King of Norway; Her Majesty the Queen of Holland; His Majesty the Emperor of Russia; His Majesty the King of Sweden; having recognized the necessity for an agreement upon certain uniform rules to protect human life at sea, have decided to hold a Convention for this purpose, and have appointed the following parties as their Plenipotentiaries, viz:

His Majesty the Emperor of Germany, King of Prussia, on behalf of the German Empire:

His Excellency Dr. von Koerner, at present Privy Councillor, Chief of the Branch of Commerce at the Imperial Department of Foreign Affairs;

Dr. Seeliger, Privy Councillor of the Diplomatic Service, Councillor-Reporter at the Imperial Department of Foreign Affairs;

Mr. Schütt, Privy Councillor of the Government, Councillor-Reporter at the Imperial Department of the Interior;

Dr. Riess, Privy Councillor of the Government, member of the Imperial Department of Insurance;

Professor Pagel, Director of the Society of Classification "Germanischer Lloyd;"

Mr. Schrader, Superior Privy Councillor of the Post Office Department, Councillor-Reporter at the Imperial Post Office Department;

Mr. Behm, retired Rear Admiral, Editor of the "Deutsche Seewarte."

His Majesty the Emperor of Austria, King of Bohemia, etc., and Apostolic King of Hungary:

Baron G. de Frankenstein, Councillor of the Diplomatic Service, in charge of the Commercial Affairs at the Ambassy of Austria and Hungary in London;

Mr. Paul Schreckenthal, Doctor at Law, Secretary to the Imperial and Royal Department of Commerce of Austria;

Mr. Ladislaus Dunay, Councillor of the Royal Hungarian Shipping Service at Fiume.

His Majesty the King of Belgium:
Mr. E. A. Pierrard, General Director of Shipping, at the Department of Marine, Post Office and Telegraph;
Mr. Ch. Le Jeune, President of the International Committee of Shipping;
M. L. Franck, Barrister, Member of the Chamber of Representatives, Vice-President of the International Committee of Shipping.

His Majesty the King of Denmark:
Mr. A. H. M. Rasmussen, Superintendent of Instruction for the State Engineers;
Mr. Emil Krogh, Chief Clerk at the Department of Commerce and Navigation;
Mr. Host, Administrator of the "Société anonyme unifiée des vapeurs,"
Mr. V. Topsöe-Jensen, Deputy Chief Clerk and Secretary to the Department of Justice.

His Majesty the King of Spain:
Captain Don Rafael Bausa, R. N. Chief of the Naval Spanish Commission in London.

The President of the United States of America:
Mr. J. W. Alexander, member of the Congress;
Mr. T. E. Burton, member of the Senate;
Mr. J. Hamilton Lewis, member of the Senate;
Mr. E. T. Chamberlain, Director of Shipping;
Mr. E. P. Bertolf, Captain-Commander of the Customs Cutters Service;
Rear-Admiral Washington L. Capps, of Naval Engineering;
Captain George F. Cooper, hydrographer of the Marine Department;
Mr. Homer L. Ferguson, Administrator and Manager of the Company of "Newport News" for the building of ships and dry docks;
Mr. Alfred Gilbert Smith, Vice-President of the "New York and Cuba Mail Steamship Company."
Captain W. H. C. Bullard, Superintendent of the Naval Service of Radiotelegraphy;
Mr. George Uhler, Inspector General of Steamboats.

The President of the French Republic:
Mr. Guernier, Professor of Political Economy at the University of Lille, Deputy Vice-President of the Commission on Shipping in the Chamber of Deputies, Vice-President of the Council Superior of Shipping.

His Majesty the King of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the seas, Emperor of India:
Lord Mersey, late President of Marine Affairs in the High Court of Justice, and President of the Court of Inquiry on the loss of the Steamship "Titanic."
Mr. E. G. Moggridge, Assistant Secretary to the Board of Trade for the Department of Shipping;
Sir Archibald Denny, Bart., President of the Departmental Committee on bulkheads and watertight compartments;
Sir Norman Hill, President of the Advisory Committee on Shipping;
Sir John Biles, LL.D., D.Sc., late President of the Departmental Committee on Life-Saving Boats and Davits;
Captain Aeton Blake, Deputy Master of Trinity House;
Captain A. H. F. Young, Councillor to the Department of Shipping at the Board of Trade;

Mr. C. Hipwood, of the Department of Shipping at the Board of Trade.
Mr. W. D. Archer, Chief Inspector of Vessels at the Board of Trade;

For Australia:
Captain R. Muirhead Collins, Official Secretary to the Confederation of the Australian States in London.

For Canada:
Mr. Alexander Johnston, Deputy Minister of Marine and Fisheries.

For New-Zealand:
Mr. Thomas Mackenzie, High Commissioner of the Government of New Zealand in London.

His Majesty the King of Italy:
Mr. Carlo Bruno, Director General of Shipping at the Department of Marine;
Major General Vittorio Ripa di Meana, Naval Engineering;
Mr. Gustavo Tosti, Doctor at Law, Consul General.

His Majesty the King of Norway:
Mr. Harald Pedersen, Superintendent of the Office of Shipping.
Dr. Johannes Bruhn, Superintendent of "Norske Veritas;"
Mr. Jens Evang, Secretary to the Department of Foreign Affairs.

Her Majesty the Queen of Holland:
Mr. J. V. Wierdsma, Director and Chairman of the Committee of Directors of the Company Hollando-American;
Mr. H. S. J. Maas, Consul General of Holland in London;
Mr. A. D. Muller, Inspector General of Navigation;
Mr. J. Wilmink, Superintendent of the Royal Lloyd of Holland;
Mr. J. W. G. Coops, Chief Clerk at the Department of Agriculture, Industry and Commerce.

His Majesty the Emperor of Russia:
Mr. Roman Mikhailovitch Loviaguin, Councillor of State, Inspector of Shipping and Ports.

His Majesty the King of Sweden:
Vice-Admiral Olsen, late Chief of the Naval Services;
Mr. N. G. Nilsson, Inspector of the life saving apparatus at the Department of Commerce.

These Plenipotentiaries being duly authorized met in London, and unanimously agreed upon the following Convention:

INTERNATIONAL CONVENTION ON SAFETY OF HUMAN LIFE AT SEA

CHAPTER I.—SAFETY OF LIFE AT SEA.

Article 1.

The High Contracting Parties undertake to give effect to the provisions of this Convention, for the purpose of securing safety of life at sea, to promulgate all regulations and to take all steps which may be necessary to render it fully and completely effective.

The provisions of this Convention are completed by Regulations which have the same force and take effect at the same time as the Convention. Every reference to the Convention implies at the same time a reference to the Regulations annexed thereto.

CHAPTER II.—SHIPS TO WHICH THE CONVENTION APPLIES.

Article 2.

Except where otherwise provided by the Convention, the merchant ships of each of the States of the High Contracting Parties which are mechanically propelled, which carry more than 12 passengers and which proceed from a port of one of the said States to a port situated outside that State, or inversely, are subject to the provisions of this Convention. Ports situated in the Colonies, Possessions or Protectorates of the High Contracting Parties are considered to be ports outside the States of the High Contracting Parties.

Persons who are on board by reason of *force majeure* or in consequence of the obligation laid upon the master to carry shipwrecked or other persons are not deemed to be passengers.

Article 3.

There are excepted from this Convention, save in the cases where the Convention otherwise provides, ships making voyages specified in a schedule to be communicated by each High Contracting Party to the British Government at the time of ratifying the Convention.

No schedule may include voyages in the course of which the ships go more than 200 sea miles from the nearest coast.

Each High Contracting Party has the right subsequently to modify its schedule of voyages in conformity with this article on condition that it notifies the British Government of such modification.

Each High Contracting Party has the right to claim from another Contracting Party the benefit of the advantages of the Convention for all of its ships which may be engaged in any one of the voyages mentioned in its own schedule. For this purpose the Party claiming such benefit shall impose on the said ships the obligations prescribed by the Convention in so far as, having regard to the nature of the voyage, these obligations would not be unreasonable or unnecessary.

ARTICLE 4.

No ship, not subject to the provisions of this Convention at the time of its departure, can be subjected to it in the course of its voyage, if stress of weather or any other cause of *force majeure* compels it to take refuge in a port of one of the States of the High Contracting Parties.

CHAPTER III.—SAFETY OF NAVIGATION.

ARTICLE 5.

When the expression 'every ship' is used in this Chapter and in the corresponding Part of the Regulations, it includes all merchant ships belonging to the Contracting States whether defined in Article 2 or not.

ARTICLE 6.

The High Contracting Parties undertake to take all steps to ensure the destruction of derelicts in the northern part of the Atlantic Ocean which lies to the east of a line drawn from Cape Sable to a point situated in latitude 34° north and longitude 70° west. Further, they will establish in the North Atlantic Ocean with the least possible delay a service for the study and observation of ice conditions and a service of ice patrol. For this purpose:—

Two vessels shall be charged with these three services.

During the whole of the ice season, they shall be employed in ice patrol.

During the rest of the year the two vessels shall be employed both in the study and observation of ice conditions and in the destruction of derelicts; nevertheless the study and observation of ice conditions shall be effectively carried out, in particular from the beginning of February to the opening of the ice season.

When the two vessels are employed in ice patrol, the High Contracting Parties to the extent of their ability and so far as the exigencies of the Naval Service will permit, will send warships or other vessels to deal with the destruction of dangerous derelicts, if this destruction is considered necessary at that time.

ARTICLE 7.

The Government of the United States is invited to undertake the management of the three services of derelict destruction, study and observation of ice conditions, and ice patrol. The High Contracting Parties which are specially interested in these services, and whose names are given below, undertake to contribute to the expense of establishing and maintaining the said services in the following proportions:—

	Per cent.
Austria-Hungary	2
Belguim	4
Canada	2
Denmark	2
France	15
Germany	15
Great Britain	30
Italy	4
Netherlands	4
Norway	3
Russia	2
Sweden	2
United States of America	15

Each of the High Contracting Parties has the right to discontinue its contribution to the expense of maintaining these services after the 1st September, 1916. Nevertheless the High Contracting Party which avails itself of this right will continue responsible with regard to the expenses of maintenance up to the 1st September following the date of denunciation of the Convention on this particular point. To take advantage of the said right, it must give notice to the other Contracting Parties at least six months before the said 1st September; so that, to be free from its obligations on the 1st September, 1916, it must give notice on the 1st March, 1916, at the latest, and similarly for each subsequent year.

In case the United States Government should not accept the proposal made to them, or in case one of the High Contracting Parties, for any reason, should not assume responsibility for the pecuniary contribution defined above, the High Contracting Parties shall settle the question in accordance with their mutual interests.

The Government of the High Contracting Party which undertakes the management of the service of derelict destruction is invited to devise means of granting, at the expense of the service, to merchant ships, which have contributed in an effective manner to the destruction of ocean derelicts, rewards to be fixed by the Government in accordance with the services rendered.

The High Contracting Parties which contribute to the cost of the three above-mentioned services shall have the right by common consent to make such alterations in the provisions of this Article and Article 6 as from time to time appear to them desirable.

Article 8.

The master of every ship which meets with dangerous ice or a dangerous derelict is bound to communicate the information by all means at his disposal to the ships in the vicinity, and also to the competent authorities at the first point of the coast with which he can communicate.

Every Administration which receives intelligence of dangerous ice or a dangerous derelict shall take all steps which it thinks necessary for distributing it to those concerned and for communicating it to other Administrations.

The transmission of messages respecting ice and derelicts is free of cost to the ships concerned.

It is desirable that the said information should be sent in a uniform manner. For this purpose, a code, the use of which is optional, appears in Article I of the Regulations annexed hereto.

Article 9.

Every ship fitted with radio-telegraphic installation becoming aware of the existence of an imminent and serious danger to navigation, shall report it immediately in the form prescribed by Article II of the Regulations annexed hereto.

Article 10.

When ice is reported on, or near, the route, the master of every ship propelled by machinery is bound to proceed at night at a moderate speed, or to alter his course so as to go well clear of the danger zone.

Article 11.

The ships defined by Article 2 shall be provided with a Morse signalling lamp of sufficient range.

The use of Morse signals is regulated by the Code appearing in Article II, 1, as well as by Article 14 of the Regulations annexed hereto.

ARTICLE 12.

The use of the international distress signals for any other purpose than that of signals of distress is prohibited on every ship.

The use of private signals which are liable to be mistaken for the international distress signals is prohibited on every ship.

ARTICLE 13.

The selection of the routes, both on the eastward and westward passages across the North Atlantic, is left to the responsibility of the steamship companies. Nevertheless the High Contracting Parties undertake to impose on these companies the obligation to give public notice of the regular routes which they propose for their vessels, and of any changes which they make in them.

The High Contracting Parties undertake further to use their influence to induce the owners of all vessels crossing the Atlantic, to follow as far as practicable the routes adopted by the principal companies.

ARTICLE 14.

The High Contracting Parties undertake to use all diligence to obtain from the Governments which are not parties to this Convention, their agreement to the revision of the International Regulations to Preventing Collisions at Sea as indicated below:—

(*A*) The Regulations shall be completed or revised in regard to the following points:—

(1) The second white light.
(2) The stern light.
(3) A day signal for motor vessels.
(4) A sound signal for a vessel towed.
(5) The prohibition of signals similar to distress signals.

(*B*) Articles 2, 10, 14, 15, 31 of the said Regulations shall be amended in accordance with the following provisions:—

Article 2. The second white mast head light to be compulsory.

Article 10. A permanent fixed stern light to be compulsory.

Article 14. A special day signal to be compulsory for motor vessels.

Article 15. A special sound signal to be established for use by a vessel in tow, or if the tow is composed of several vessels, by the last vessel of the tow.

Article 31. Article 31 to be modified in the following manner:—

Add to the lists of both day and night signals "The international radiotelegraphic distress signal."

ARTICLE 15.

The Governments of the High Contracting Parties undertake to continue in force, or if it is necessary, to adopt, adequate measures for the purpose of insuring that, from the point of view of safety of life at sea, the ships defined in Article 2 shall be sufficiently and efficiently manned.

CHAPTER IV.—CONSTRUCTION.

Article 16.

New Vessels and existing vessels.

For the purpose of the Articles contained in this Chapter and in the corresponding part of the annexed Regulations, the vessels defined in Article 2 are divided into "new vessels" and "existing vessels."

New vessels are those the keel of which is laid after the 1st July, 1915. The following Articles 17 to 30 of this Chapter are applicable to them in full.

Other vessels are considered as existing vessels. Existing arrangements on these vessels shall be considered on their merits by the Administration of the country to which each vessel belongs, with a view to improvements providing increased safety where practicable and reasonable.

Article 17.

Subdivision of Vessels.

Vessels shall be as efficiently subdivided as is possible, having regard to the nature of the services for which they are intended. The minimum requirements respecting subdivision and arrangements affecting subdivision are given in the following articles and in the Regulations annexed to this Convention.

The degree of safety provided by these minimum requirements varies in a regular and continuous manner with the length of the vessel and with a certain "criterion of service." The requirements of the annexed Regulations are such that the highest degree of safety corresponds to the vessels of greatest length primarily engaged in the transportation of passengers.

Articles V to IX of the annexed Regulations state the method to be followed in order to determine the permissable length of compartments on the basis of the floodable length; prescribe a limit to the length of compartments; and fix the conditions governing certain special cases.

When the water-tight sub-division of a vessel is such as to provide a degree of safety over and above that provided by the sub-division rules prescribed by this Convention, the Administration of the country to which the vessel belongs shall, if so requested by the owner, record this fact on the Safety Certificate of the vessel in the manner and to the extent provided in Article X of the annexed Regulations.

Article 18.

Peak and Machinery Space Bulkheads.

Vessels shall be fitted with forward and after peak bulkheads and bulkheads at the extremities of the machinery space in accordance with the requirements of Article XI of the annexed Regulations.

Article 19.

Fireproof Bulkheads.

With a view to retarding the spread of fire, vessels shall be fitted with fireproof bulkheads in accordance with the requirements of Article XII of the annexed Regulations.

ARTICLE 20.

Exits from Watertight Compartments.

The conditions under which means of escape from the various watertight compartments shall be provided are stated in Article XIII of the annexed Regulations.

ARTICLE 21.

Construction and Tests of Watertight Bulkheads.

In order to ensure their strength and watertightness, watertight bulkheads shall be constructed and tested in accordance with the requirements of Article XIV of the annexed Regulations.

ARTICLE 22.

Openings in Watertight Bulkheads.

The openings in watertight bulkheads shall be reduced to the smallest number, compatible with the design and proper working of the vessel, and satisfactory means shall be provided for closing them. Articles XV and XVII of the annexed Regulations state the requirements governing the number of openings, the character and use of the means of closing with which these openings shall be provided, and the tests to which watertight doors shall be subjected.

ARTICLE 23.

Openings in Ship's Side.

Side-scuttles and other openings in the side of the vessel, and the inboard openings of discharges through the shell, shall be provided with means of closing them, and shall be arranged in such manner as to prevent as far as possible the accidental admission of water into the vessel. Articles XVI and XVII of the annexed Regulations state the conditions under which openings may be made in the ship's side, the means which shall be provided for closing these openings and the requirements as to operating the closing appliances.

ARTICLE 24.

Construction and Test of Watertight Decks, &c.

In order to ensure their strength and watertightness, watertight decks, trunks, and ventilators, shall be constructed and tested in accordance with the requirements of Article XVIII of the annexed Regulations.

ARTICLE 25.

Periodical Operation and Inspection of Watertight Doors, &c.

The conditions under which inspections of watertight doors, &c., and drills for their operation, shall be periodically made during a voyage, are stated in Article XIX of the annexed Regulations.

ARTICLE 26.

Entries in Official Log.

A record of the closing and opening of watertight doors, &c., and of all inspections and drills, shall be entered in the official log as required by Article XX of the annexed Regulations.

ARTICLE 27.

Double Bottoms.

The conditions under which a double bottom shall be fitted in vessels of different lengths, and in particular the minimum extent of the double bottom longitudinally and transversely, are stated in Article XXI of the annexed Regulations.

ARTICLE 28.

Backing Power and Auxiliary Steering Apparatus.

Vessels shall comply, as regards backing power and the fitting of auxiliary steering apparatus, with the requirements of Articles XXII and XXIII of the annexed Regulations.

ARTICLE 29.

Initial and Subsequent Surveys of Vessels.

The general principles which shall govern the survey of the vessels, whether new or existing, defined in Article 2, as regards hull, boilers, main and auxiliary machinery, and equipments, are stated in Articles XXIV and XXVI of the annexed Regulations. The Government of each of the High Contracting Parties undertakes (1) to draw up detailed rules and regulations in accordance with these general principles, or to bring its existing rules and regulations into agreement with these principles; (2) to communicate these rules and regulations to each of the other contracting States; and (3) to secure that these rules and regulations shall be enforced.

The detailed rules and regulations referred to in the preceding paragraph shall be such in all respects as to secure, in the interest of safety of life at sea, that the vessel is fit for the service in which she will be employed.

ARTICLE 30.

Questions for further Study and Agreement—Exchange of Information.

The High Contracting Parties undertake to cause the study of the criterion of service referred to in Article 17 to be pressed forward, and to communicate to each other the results of that study. His Britannic Majesty's Government is invited to undertake the duty of circulating this information, and, as soon as a definite result is attainable, of endeavouring to secure, through the diplomatic channel, the acceptance by the contracting States of the criterion; and upon its acceptance by each of the contracting States, as from a date and subject to the conditions to be agreed upon, such criterion shall have effect as if it were prescribed in the Convention.

The above procedure shall also be applied to the following items:—

(1. The fitting of longitudinal watertight bulkheads, double skins and watertight decks and flats, and the question whether there may be allowed any increase in the length of transverse watertight compartments in way of which such longitudinal sub-division is fitted, and, if so, to what extent:

(2.) The method of sub-division for obtaining the highest practicable degree of safety to be applied to vessels of shorter lengths than those covered by Article VIII of the annexed Regulations; and

(3.) The results of experiments in regrad to the proper margin of resistance above the pressure which watertight bulkheads are required to be capable of supporting, as referred to in Article XIV of the annexed Regulations.

The contracting States undertake to exchange in the freest manner practicable all information in regard to the application of the rules of this Convention in matters relating to safety of construction. They shall transmit to each other the methods or rules which each may adopt; information concerning any new fittings or appliances which they may sanction; the decisions which each may make in regard to specific points of principle not covered by the foregoing articles and the corresponding portion of the appended Regulations; and the final results of their further studies in the matters not definitely determined.

CHAPTER V.—RADIOTELEGRAPHY.

Article 31.

All merchant ships belonging to each of the Contracting States, whether they are propelled by machinery or by sails, and whether they carry passengers or not, shall, when engaged on the voyages specified in Article 2, be fitted with a radiotelegraph installation, if they have on board fifty or more persons in all.

Advantage shall not be taken of the provisions of Articles 2 and 3 of this Convention to exempt a ship from the requirements of this Chapter.

Article 32.

Ships on which the number of persons on board is exceptionally and temporarily increased up to or beyond fifty as the result of *force majeure*, or because the master is obliged by the illness of certain members of the crew to engage substitutes or is required to carry shipwrecked or other persons, are exempted from the above obligation.

Moreover, the Governments of each of the Contracting States, if they consider that the route and the conditions of the voyage are such as to render a radiotelegraph installation unreasonable or unnecessary, may exempt from the above requirement the following ships —

(1.) Ships which in the course of their voyage do not go more than 150 sea miles from the nearest coast.

(2.) Ships on which the number of persons on board is exceptionally or temporarily increased up to or beyond fifty by the carriage of cargo hands for a part of the voyage, provided that the said ships are not going from one continent to another, and that, during that part of their voyage, they remain within the limits of latitude 30° N. and 30° S.

(3.) Sailing vessels of primitive build such as *dhows*, *junks*, &c., if it is practically impossible to instal a radiotelegraph apparatus.

ARTICLE 33.

Ships which, in accordance with Article 31 above, are required to be fitted with a radiotelegraph installation are divided, for the purpose of radiotelegraph service, into three classes, in accordance with the classification established for ship stations in Article XIII (*b*) of the Regulations annexed to the Radiotelegraph Convention, signed in London on the 5th July, 1912, viz.:—

Class I.—Ships having a continuous service.

There shall be placed in the first class ships which are intended to carry twenty-five or more passengers:—

(1.) if they have an average speed in service of fifteen knots or more;
(2.) if they have average speed in service of more than thirteen knots, but only subject to the twofold condition that they have on board two hundred persons or more (passengers and crew) and that, in the course of their voyage, they go a distance of more than five hundred sea miles between any two consecutive ports, nevertheless these ships may be placed in the Second Class on condition that they have a continuous watch.

Class II.—Ships having a service of limited duration.

There shall be placed in the Second Class all ships which are intended to carry twenty-five or more passengers, if they are not, for other reasons, placed in the First Class.

Ships placed in the Second Class must, during navigation, maintain a continuous watch for at least seven hours a day, and a watch of ten minutes at the beginning of every other hour.

Class III.—Ships which have no fixed periods of service.

All ships which are placed neither in the First nor in the Second Class shall be placed in the Third Class.

The owner of a ship placed in the Second or in the Third Class has the right to require that, if the ship complied with all the requirements for a superior class, a statement to the effect that it belongs to that class shall be inserted in its Safety Certificate.

ARTICLE 34.

Ships which are required by Article 31 above to be fitted with a radiotelegraph installation shall be required, by the Governments of the countries to which they belong, to maintain a continuous watch during navigation as soon as the said Governments consider that it will be of service for the purpose of safety of life at sea.

Meanwhile, the High Contracting Parties undertake to require, from the date of the ratification of the present Convention, subject to the delays specified below, a continuous watch on the following ships —

(1.) Ships whose average speed in service exceeds 13 knots, which have on board 200 persons or more, and which, in the course of their voyage, go a distance of more than 500 sea miles between two consecutive ports, when these ships are placed in the Second Class.
(2.) Ships in the Second Class, for the whole of the time during which they are more than 500 sea miles from the nearest coast.

(3.) Other ships specified in Article 31, when they are engaged in the Trans-Atlantic trade, or when they are engaged in other trades if their route takes them more than 1,000 sea miles from the nearest coast.

Ships engaged in all kinds of fishing business, including whaling, which are required to be fitted with a radiotelegraph installation, shall not be required to maintain a continuous watch.

The continuous watch may be kept by one or more operators, holding certificates in accordance with Article X of the Regulations annexed to the International Radiotelegraph Convention, 1912, together, if necessary, with one or more certified watchers. Nevertheless, if an efficient automatic calling apparatus is invented, the continuous watch may be maintained by this means by agreement between the High Contracting Parties.

By "certified watcher" is meant any person holding a certificate issued under the authority of the Administration concerned. To obtain this certificate, the applicant must prove that he is capable of receiving and understanding the radiotelegraph distress signal and the safety signal described in the Regulations annexed hereto.

The High Contracting Parties undertake to take the proper steps to ensure that the certified watchers observe the secrecy of correspondence.

ARTICLE 35.

The radiotelegraph installations required by Article 31 above shall be capable of transmitting clearly perceptible signals from ship to ship over a range of at least 100 sea miles by day, under normal conditions and circumstances.

Every ship which is required, in conformity with the provisions of Article 31 above, to be fitted with a radiotelegraph installation, shall, whatever be the class in which it is placed, be provided in accordance with Article XI of the Regulations annexed to the International Radiotelegraph Convention, 1912, with an emergency installation, every part of which is placed in a position of the greatest possible safety, to be determined by the Government of the country to which the ship belongs. In all cases the emergency installation must be placed, in its entirety, in the upper part of the ship, as high as practically possible.

The emergency installation includes, as provided by Article XI of the Regulations annexed to the International Radiotelegraph Convention, 1912, an independent source of energy capable of being put into operation rapidly and of working for at least six hours with a minimum range of eighty sea miles for ships in the First Class and fifty sea miles for ships in the two other Classes.

If the normal installation, which in accordance with this Article has a range of at least one hundred sea miles, satisfies all the conditions prescribed above, an emergency installation is not required.

The license provided for in Article 9 of the Regulations annexed to the International Radiotelegraph Convention, 1912, shall not be issued unless the installation complies not only with the provisions of that Convention, but also with the provisions of this Convention.

ARTICLE 36.

The matters governed by the International Radiotelegraph Convention, 1912, and the Regulations annexed thereto, and in particular the radiotelegraph installations on ships, transmission of messages, and the certificates of the operators, remain and continue subject to the provisions:

(1) of that Convention and the Regulations annexed thereto, or of any other instruments which may in the future be substituted therefor;

(2) of this Convention, in regard to all the points in which it supplements the aforementioned documents.

ARTICLE 37.

Every master of a ship, who receives a call for assistance from a ship in distress, is bound to proceed to the assistance of the persons in distress.

Every master of a ship in distress has the right to requisition from among the vessels which answer his call for assistance, the vessel or vessels which he considers best able to render him assistance, but he must exercise this right only after consultation, so far as may be possible, with the masters of those vessels. Such vessels are then bound to comply immediately with the requisition and to proceed with all speed to the assistance of the persons in distress.

The masters of the ships which are required to render assistance are released from this obligation as soon as the master or masters which have been requisitioned have made known that they will comply with the requisition, or as soon as the master of one of the ships which has reached the scene of the casualty has made known to them that their assistance is no longer necessary.

If the master of a ship is unable, or considers it unreasonable or unnecessary, in the special circumstances of the case, to go to the assistance of the ship in distress, he must immediately inform the master of the ship in distress accordingly. Moreover he must enter in his log-book the reasons justifying his action.

The above provisions in no way prejudice the International Convention for the Unification of certain rules with respect to Assistance and Salvage at Sea, signed at Brussels on the 23rd September, 1910, and, in particular, the obligation to render assistance laid down in Article 11 of that Convention.

ARTICLE 38.

The High Contracting Parties undertake to take all steps necessary for giving effect to the provisions of this Chapter with the least possible delay. Nevertheless, they may allow:

A delay not exceeding one year, from the date of the ratification of this Convention, for the provision and training of operators and for the installation of the apparatus on ships placed in the First and Second Classes;

A delay not exceeding two years, from the date of the ratification of this Convention, for the provision and training of the operators and watchers, on the ships in the Third Class, for the installation of the apparatus on ships in the Third Class and for the establishment of a continuous watch on ships placed in the second and Third Class.

CHAPTER VI.—LIFE-SAVING APPLIANCES AND FIRE PROTECTION.

ARTICLE 39.

New Ships and Existing Ships.

For the purpose of applying the articles of this Chapter and of the corresponding Part of the Regulations the ships defined in Article 2 are divided into *new ships* and *existing ships.*

New ships are those of which the keel is laid after the 31st December, 1914.

The other ships are considered *existing ships.*

ARTICLE 40.

Fundamental Principle.

At no moment of its voyage may a ship have on board a total number of persons greater than that for which accommodation is provided in the lifeboats and the pontoon life-rafts on board.

The number and arrangements of the boats, and (where they are allowed) of the pontoon rafts on a ship corresponds with the total number of persons which a ship is intended to carry; provided that there shall not be required on any voyage a total capacity in boats and (where they are allowed) pontoon-rafts greater than that necessary to provide accommodation for all the persons on board.

ARTICLE 41.

Standard types of boats—Pontoon rafts.

All the life-boats allowed for a ship shall comply with the conditions fixed by this convention and Articles XXVII to XXXII of the Regulations annexed hereto; the same articles described the standard types which are divided into two classes.

The conditions required for the pontoon-rafts are given in Article XXXIII of the same regulations.

ARTICLE 42.

Strength of boats.

Each boat must be of sufficient strength to enable it to be safely lowered when loaded with its full complement of persons and equipment.

ARTICLE 43.

Alternate types of boats and rafts.

Any type of boat may be accepted as equivalent to a boat of one of the prescribed classes and any type of raft as equivalent to an approved pontoon-raft, if the Administrations concerned are satisfied by suitable trials that it is as effective as the standard types of the class in question, or as the approved type of pontoon-raft, as the case may be.

The Government of the High Contracting Party which accepts a new type of boat or raft will communicate to the Governments of the other Contracting Parties particulars of the trials. It will also inform them of the class in which a new type of boat has been placed.

ARTICLE 44.

Embarkation of the passengers in the boats and rafts.

Suitable arrangements shall be made for embarking the passengers in the boats.

In ships which carry rafts there shall be a number of rope ladders always available for use in embarking the persons on to the rafts.

ARTICLE 45.

Capacity of boats and pontoon rafts.

The number of persons that a boat of one of the standard types or an approved pontoon raft can accommodate, is determined by the methods indicated in Articles XXXIV to XXXIX inclusive, of the Regulations annexed hereto.

ARTICLE 46.

Equipment of boats and pontoon rafts.

Article XL of the annexed Regulations prescribes the equipment for boats and pontoon-rafts.

All loose equipment must be securely attached to the boat or pontoon-raft to which it belongs.

ARTICLE 47.

Stowage of boats—Number of davits.

The arrangement to be made for the stowage of the boats and in particular the extent to which pontoon rafts may be accepted are specified in Articles XLI, XLII and XLIII of the annexed Regulations. The minimum number of sets of davits is fixed in relation to the length of the ship; provided that a number of sets of davits greater than the number of boats necessary for the accommodation of all the persons on board may not be required.

ARTICLE 48.

Handling of the boats and rafts.

All the boats and rafts must be stowed in such a way that they can be launched in the shortest possible time and that, even under unfavourable conditions of list and trim from the point of view of the handling of the boats and rafts, it may be possible to embark in them as large a number of persons as possible.

The arrangements must be such that it may be possible to launch on either side of the ship as large a number of boats and rafts as possible.

Supplementary instructions are given in Article XLIV of the annexed Regulations.

ARTICLE 49.

Strength and operation of the davits.

The davits shall be of such strength that the boats can be lowered with their full complement of persons and equipped when the ship is assumed to have a list of 15 degrees.

The davits must be fitted with a gear of sufficient power to ensure that the boat can be turned out against the maximum list under which the lowering of the boats is possible on the vessel in question.

ARTICLE 50.

Other appliances equivalent to davits.

Any appliance or appliances may be accepted in lieu of davits or sets of davits if the Administration concerned is satisfied, after proper trials, that the appliance in question is as effective as davits for placing the boats in the water.

The Government of the High Contracting Party which accepts a new type of appliance or appliances, shall communicate to the other Contracting Parties particulars of the appliance or appliances, with details of the trials made.

ARTICLE 51.

Life jackets and life buoys.

(1) A life jacket of an approved type, or other appliance of equal buoyancy and capable of being fitted on the body, must be provided for every person on board, and, in addition, a sufficient number of life jackets, or other equivalent appliances, suitable for children.

(2) Article XLV of the annexed Regulations fixes, in accordance with the length of the ship, the number of life buoys of an approved type to be provided, and also the conditions with which life jackets and life buoys must comply, and in accordance with which they must be stowed.

ARTICLE 52.

Existing ships.

The Government of each of the High Contracting Parties undertakes to apply to existing ships, not later than the 1st July, 1915, all the provisions of the preceding articles of the present Chapter, viz., Articles 40 to 51 inclusive, requiring, in the first place, accommodation for all the persons on board in boats and rafts; provided that, in cases where the strict application of these principles would not be practicable or reasonable, the Government of each of the High Contracting Parties has the right to allow the exemptions specified in Article XLVI of the Regulations annexed hereto.

ARTICLE 53.

New or existing means of ingress and egress.—Emergency lighting.

(1) Proper arrangements shall be made for ingress to and egress from the different compartments, decks, &c.

(2) An electric or other system of lighting, sufficient for all requirements of safety, must be ensured in the different parts of both new and old ships, and particularly upon the decks on which the life-boats are stowed. On new ships there must be a self-contained source capable of supplying, when necessary, this safety lighting system, and placed in the upper parts of the ship, as high as practically possible.

(3) The exit from every compartment must always be lighted by an emergency lamp, which shall be kept locked, and which shall be independent of the ordinary lighting of the ship.

These emergency lamps may be supplied from the independent installation referred to in the preceding paragraph, if an independent circuit is employed for this purpose and if this installation works concurrently with the ordinary lighting of the ship.

Article 54.

Certified Life-boat Men—Manning of the Boats.

There must be for each boat or raft required a minimum number of certified life-boat men. The minimum total number of certified life-boat men is determined by the provisions of Article XLVII of the annexed Regulations.

The allocation of the certified life-boat men to each boat and raft remains within the discretion of the master, according to the circumstances.

By "certified life-boat man" is meant any member of the crew who holds a certificate of efficiency issued under the authority of the Administration concerned, in accordance with the conditions laid down in the aforementioned Article of the annexed Regulations.

Article XLVIII of the Regulations deals with the manning of the boats.

Article 55.

Fire protection.

(1) The carriage, either as cargo, or ballast, of goods, which by reason of their nature, quantity, or mode of stowage, are, either singly or collectively, likely to endanger the lives of the passengers or the safety of the ship, is forbidden.

This provision does not apply to the ship's distress signals, nor to the carriage of naval or military stores for the public service under authorized conditions.

(2) The Government of each High Contracting Party shall, from time to time by official notice, determine what goods are to be considered dangerous goods, and shall indicate the precautions which must be taken in the packing and stowage thereof.

(3) Article XLIX of the annexed Regulations indicates the arrangements to be made for the detection and extinction of fire.

Article 56.

Muster Roll and Drills.

Special duties for the event of an emergency shall be allotted to each member of the crew.

The muster list shows all these special duties, and indicates, in particular, the station to which each man must go, and the duties that he has to perform.

Before the vessel sails, the muster list shall be drawn up and exhibited, and the proper authority shall be satisfied that the muster list has been prepared for the ship. It shall be posted in several parts of the ship, and in particular in the crew's quarters.

Articles L and LI of the annexed Regulations indicate the conditions under which musters of the crew and drills shall take place.

CHAPTER VII.—SAFETY CERTIFICATES.

Article 57.

A certificate, called a "Safety Certificate," shall be issued, after survey, to every ship which complies in an efficient manner with the requirements of the Convention.

The inspection and survey of ships, so far as regards the enforcement of the provisions of the present Convention and the annexed Regulations, shall be carried out by officers of the State to which the ship belongs; provided always that the Government of each state may entrust the survey of vessels of its own country either to surveyors nominated by it for this purpose or to organizations recognized by it. In every case the Government concerned fully guarantees the completeness and efficiency of the survey.

The Safety Certificate shall be issued either by the officers of the State to which the ship belongs, or by any other person duly authorized by that State. In either case the State to which the ship belongs assumes full responsibility for the certificate.

Article 58.

The Safety Certificate shall be drawn up in the official language or languages of the State by which it is issued.

The form of the certificate shall be that of the standard certificate given in Article 52 of the Regulations annexed hereto. The arrangement of the printed part of this standard certificate shall be exactly reproduced and the particulars inserted by hand shall be inserted in Roman characters and Arabic figures.

The High Contracting parties undertake to communicate one to another a sufficient number of specimens of their Safety Certificates for the information of their officers. This exchange shall be made, so far as possible, before the 1st April, 1915.

Article 59.

The Safety Certificate shall not be issued for a period of more than twelve months.

If the ship is not in a port of the State to which it belongs at the time when the period of the validity of the Safety Certificate expires, a duly authorized officer of this State may extend this period; but such an extension shall be granted only for the purpose of allowing the ship to complete its return voyage to its own country, and then only in cases in which it appears proper and reasonable so to do.

The extension cannot have effect for more than five months and the ship shall not thereby be entitled to leave its own country again without having obtained a new certificate.

Article 60.

The Safety Certificate issued under the authority of a Contracting State shall be accepted by the Governments of the other Contracting States for all purposes covered by this Convention. It shall be regarded by the Governments of the other Contracting States as having the same force as the certificates issued by them to their own ships.

ARTICLE 61.

Every ship holding a Safety Certificate issued by the officers of the Contracting State to which it belongs, or by persons duly authorized by that State, is subject in the ports of the other Contracting States to control by officers duly authorized by their Governments in so far as this control is directed towards verifying that there is on board a valid Safety Certificate and, if necessary, that the conditions of the vessel's seaworthiness correspond substantially with the particulars of that certificate; that is to say, so that the ship can proceed to sea without danger to the passengers and the crew.

ARTICLE 62.

The privileges of the Convention cannot be claimed in favour of any ship unless it holds a valid Safety Certificate.

ARTICLE 63.

If, in the course of a particular voyage, the ship has on board a number of passengers less than the maximum number indicated in the Safety Certificate, and is, in consequence, in accordance with the provisions of this Convention free to carry a smaller number of life-boats and other life-saving appliances than that stated in the aforementioned Certificate, a memorandum may be issued by the officers or other authorized persons referred to in Articles 57, paragraph 3 and 59 above.

This memorandum shall state that in the circumstances there is no infringement of the provisions of the Convention. It shall be annexed to the Safety Certificate and shall be substituted for it in so far as the life-saving appliances are concerned. It shall be valid only for the particular voyage in regard to which it is issued.

CHAPTER VIII.—GENERAL.

ARTICLE 64.

The Governments of the High Contracting Parties undertake to communicate mutually, in addition to the documents which, in this Convention, are the subject of special provisions to that effect, all information which they possess affecting safety of life on those of their ships which are subject to the rules of this Convention, provided always that such information is not of a confidential nature.

They will communicate to each other in particular:—

1. The text of Laws, Decrees and Regulations which shall have been promulgated on the various matters within the scope of the Convention.
2. The description of the characteristics of new appliances approved in conformity with the rules of the Convention.
3. All official reports, or official summaries of reports, in so far as they show the results of the provisions of this Convention.

Until other arrangements may be made, the British Government is invited to serve as intermediary for collecting all this information and for bringing it to the knowledge of the Governments of the Contracting Parties.

ARTICLE 65.

The High Contracting Parties undertake to take, or to propose to their respective legislatures, the measures necessary for the repression of infractions of the requirements imposed by this Convention.

The High Contracting Parties will communicate mutually, as soon as possible, the laws and regulations which are issued for this purpose.

ARTICLE 66.

The High Contracting Parties which intend the Convention to apply to the whole of their Colonies, Possessions and Protectorates, or to one or to some of these countries, shall declare this intention either at the time of signing these presents or subsequently. To this effect they shall be able either to make a general declaration embracing the whole of their Colonies, Possessions, and Protectorates, or to enumerate by name the countries which they intend to come within the scope of the law of the Convention, or, alternatively, to enumerate by name those which they intend to be excepted.

This declaration, unless it be made at the time of signing these presents shall be made in writing to the Government of Great Britain, and by the latter Government to all the Governments of the other States parties to the Convention.

The High Contracting Parties may also in the same way, provided that they comply with the provisions of Article 69 hereafter, denounce this Convention as regards their Colonies, Possessions or Protectorates or one or some of those countries.

ARTICLE 67.

The States which are not Parties to this Convention shall be allowed to accede thereto at their request. Their accession shall be notified through the diplomatic channel to the Government of Great Britain, and by the latter to the Governments of the other States parties to the Convention.

This accession will carry the full acceptance of all the obligations imposed by this Convention and the full right to all the privileges specified therein. It will have full and complete effect two months after the date on which notification of the accession is sent by the Government of Great Britain to all the other Governments of the States which are parties to the Convention, unless a subsequent date had been proposed by the acceding State.

The Governments of the States which shall accede to the present Convention shall annex to their declaration of accession the Schedule provided for by Article 3 of this Convention. This Schedule shall be added to those already deposited by the other Governments. The British Government shall transmit a copy thereof to the other Governments.

ARTICLE 68.

The treaties, conventions and arrangements concluded prior to this Convention shall continue to have full and complete effect, as regards:—

(1) ships excepted from the Convention;

(2) ships to which it applies, in respect of subjects for which the Convention has not expressly provided.

It is understood that, the subject of this Convention being safety of life at sea, questions relating to the well-being and health of passengers, and in particular of emigrants, as well as other matters relative to their transport, continue subject to the legislation of the different States.

ARTICLE 69.

This Convention shall come into force on the 1st July, 1915, and shall remain in force without any prescribed limit of time. Nevertheless, each High Contracting Party may denounce the Convention at any time after an interval of five years, which shall run from the date on which the Convention comes into force in that state.

This denunciation shall be notified through the diplomatic channel to the Government of Great Britain and by the latter to the Governments of the other Contracting Parties. It shall take effect twelve months after the day on which the notification is received by the Government of Great Britain.

A denunciation shall only affect the State which makes it, the Convention remaining fully completely operative as regards all the other States which have ratified it, or which have acceded thereto or which thereafter accede thereto.

ARTICLE 70.

This Convention with the Regulations annexed thereto shall be drawn up in a single copy, which shall be deposited in the archives of the Government of Great Britain. A true and certified copy shall be delivered by the latter to each of the Governments of the High Contracting Parties.

ARTICLE 71.

This Convention shall be ratified and the instruments of ratification, accompanied by the Schedules specified in Article 3, shall be deposited at London not later than the 31st December, 1914. The British Government shall give notice of the ratifications and shall furnish a copy of each Schedule to the Governments of the other Contracting Parties.

Notwithstanding failure to ratify on the part of a High Contracting Party, the Convention shall continue to have full and complete effect as regards the Contracting Parties which ratify it.

ARTICLE 72.

To render ratification easier for a Contracting State which, prior to the date of signature of this Convention, has laid down requirements in regard to any matter within the scope of this Convention, it is agreed that no ship which has complied with those requirements before the 1st July, 1915, may avail itself of the periods of grace allowed by the Convention, in order to cease to comply with those requirements.

ARTICLE 73.

Where this convention provides that a measure may be taken after agreement between all or some of the Contracting States, the Government of His Britannic Majesty is invited to approach the said States with a view to ascertaining whether they accept the proposals made by one of these States for effecting such a measure. The Government of His Britannic Majesty will make known to the Contracting States the result of the enquiries which it thus makes.

A State from which observations on the proposals in question reach His Britannic Majesty's Government within six months from the communication of these proposals, will be presumed to acquiesce therein.

ARTICLE 74.

This Convention may be modified at subsequent Conferences, of which the first shall be held, if necessary in 1920. The time and place of these Conferences shall be fixed by common consent by the Governments of the High Contracting Parties.

The Governments may, through the diplomatic channel, introduce into this Convention, by common consent and at any time, improvements which may be judged useful or necessary.

SAFETY OF NAVIGATION.

ARTICLE 1.

REGULATIONS.

CODE FOR REPORTING INFORMATION RELATING TO ICE, DERELICTS, AND WEATHER BY RADIOTELEGRAPHY.

INSTRUCTIONS.

Reporting.—The reporting of information concerning ice and derelicts is *compulsory*. This information may be sent from ship to ship or to the Hydrographic Office, Washington, either in full or by means of Part I of this Code.

The reporting of information relating to weather is voluntary. Part II of this Code may be used for this purpose. The Code may be modified at any time by the Meteorological Congresses.

The information required:

PART I.—ICE AND DERELICTS.

1. The kind of ice or derelict observed.
2. The position of ice or derelict when last determined.

PART II.—METEOROLOGICAL INFORMATION.

1. The direction and force of the wind.
2. The set and velocity of the current.
3. Weather or state of the sky at a fixed hour.
4. Height of barometer and air temperature.
5. Barometric tendency and sea-surface temperature.

The time to be adopted:

The time adopted in sending messages relating to ice or derelicts should be Greenwich mean time.

The Address:

Reports, when sent to the Hydrographic Office, Washington, should be addressed "Hydrographic"; reports to the Meteorological Office, London, should be addressed "Meteorology."

The Message:

1. When sending information about ice or derelicts alone, two groups of five figures each are used, preceded by the word "ice"; these groups may be repeated as often as desired.

2. If meteorological information is to be sent in addition, a further four groups of five figures each are used, preceded by the word "weather." These groups are inserted at the end of the message after all the information relating to ice has been given.

N.B.—If the message contains the word "weather," all the code groups before that word give information relating to ice, and those after the word "weather" give meteorological information. If there is no word "weather" in the message, it only contains information about ice. See examples of the two kinds of message given in this Article.

PART I.

Ice and Derelicts.

Information respecting ice and derelicts is given by ten figures divided into two groups of five figures each. These groups are preceded by the word "ice."

Two figures....The day of the month (*dd*), according to Code I.
One figure.....The time of observation (*T*), according to Code II.
One figure.....The kind of ice observed (*I*), according to Code III.
Three figures...The latitude of the ice observed (*ppp*) correct to tenths of a degree (see table below).
Three figures...The longitude of the ice observed ($p'\,p'\,p''$) correct to tenths of a degree (see table below).
The first group consists of *ddTIp*.
The Second group consists of $ppp'\ p'\ p'$.

Codes.

Code I.—*Day of the Month.*

The day of the month is given by two figures, of which the first may be zero: 01 to 31.

Code II.—*Time of Observation.*

The time of observation is included between—

Greenwich Mean Time.	Code No.
1 a.m. and 4 a.m.	1
4 a.m. and 7 a.m.	2
7 a. m. and 10 a.m.	3
10 a.m. and 1 p.m.	4
1 p.m. and 4 p.m.	5
4 p.m. and 7 p.m.	6
7 p.m. and 10 p.m.	7
10 p.m. and 1 a.m.	8

CODE III.—*Nature of Ice or Derelict observed.*

0. No ice observed.
1. Single iceberg. Huge mass of floating ice.
2. Several icebergs.
3. Numerous icebergs.
4. Floeberg. Thick piece of salt-water ice like a small iceberg.
5. Field ice. Navigable flat ice, extending as far as the eye can reach.
6. Pack ice. Collection of pieces of ice broken from berg or floe, partly closed together.
7. Land ice. Ice attached to the shore since the winter.
8. Derelict.
9. (Not allotted.)

EXAMPLE.

MESSAGE SENT FROM SHIP TO SHIP.

	First Message.	Coded as	Second Message.	Coded as	Third Message.	Coded as	Fourth Message.	Coded as
Date of observation	15	15	15	15	15	15	16	16
Time of observation	10–12	4	16–18	6	19–21	7	4–6	2
Nature of ice or derelict	Field	5	Numerous icebergs	3	Derelict	8	Single iceberg	1
Position of ice or derelict	Latitude 45° 42′	457	Latitude 46° 5′	461	Latitude 46° 25′	464	Latitude 47° 19′	473
	Longitude 46° 11′	462	Longitude 44° 40′	447	Longitude 43° 58′	440	Longitude 40° 15′	402

The code of the above message would thus be:

S.S. to S.S.

Ice, 15454, 57462: 15634, 61447: 15784, 64440: 16214, 73402.

PART II.

METEOROLOGICAL INFORMATION.

Information respecting weather, &c., is given by four groups of five figures each. These groups are preceded by the word "weather."

First Group (*DDPPP*):

The day of the month: two figures (*DD*), according to Code I.

The position of the ship when transmitting the message, indicated by three figures (*PPP*), representing the 1° squares in which the ship is situated, according to Code IV and the numbered chart.

Second Group (*WWCCX*):

Wind direction and force at 8 a.m. at the 75th meridian of west longitude: two figures (*WW*), according to Code V.

Set and velocity of current: two figures (*CC*), according to Code VI.

Weather or state of the sky at the same hour: one figure (*X*), according to Code VII.

Third Group (*BBBAA*):

Corrected reading of the barometer to tenths of a millimetre at 8 A.M. at the 75th meridian of west longitude: three figures (*BBB*), according to Code VIII.

Air temperature at the same hour: two figures (*AA*), according to Code IX.

Fourth Group (*bbSSS*):

Barometric tendency at 8 A.M. at the 75th meridian of west longitude: two figures (*bb*), according to Code X.

Sea surface temperature at the same hour: three figures (*SSS*), according to Code XI.

CODES.

CODE IV. *Position of Ship.*

The chart annexed to this Article gives the numbers to be assigned to each degree square in the North Atlantic. The position of the ship, when the meteorological data given in Part II were observed, is indicated by the three figures representing the 1° square in which the ship is situated. For example:—A position 51° 55′ N., 26° 49′ W. would be reported as 561.

CODE V.

Wind Direction (to 16 points) and *Wind Force* at 8 A.M. mean time at the 75th meridian of west longitude (WW).

—	Wind Force, Beaufort Scale.	N.N.E.	N.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	N.
Calm	0	00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Light breeze	1, 2, or 3	01	07	13	19	25	31	37	43	49	55	61	67	73	79	85	91
Moderate breeze	4 or 5	02	08	14	20	26	32	38	44	50	56	62	68	74	80	86	92
Strong wind	6 or 7	03	09	15	21	27	33	39	45	51	57	63	69	75	81	87	93
Gale force	8 or 9	04	10	16	22	28	34	40	46	52	58	64	70	76	82	88	94
Storm force	10 or 11	05	11	17	23	29	35	41	47	53	59	65	71	77	83	89	95
Hurricane	12	06	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96

N.B.—The wind direction is to be referred to *true* bearings.

CODE VI.

Direction (to 16 points) and *Velocity of the current* (*CC*).

Nautical Miles per hour.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	N.
0·25	01	07	13	19	25	31	37	43	49	55	61	67	73	79	85	91
0·5	02	08	14	20	26	32	38	44	50	56	62	68	74	80	86	92
1	03	09	15	21	27	33	39	45	51	57	63	69	75	81	87	93
2	04	10	16	22	28	34	40	46	52	58	64	70	76	82	88	94
3	05	11	17	23	29	35	41	47	53	59	65	71	77	83	89	95
4	06	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96
	00					No current.										
	99					No observation.										

N.B.—The current is to be referred to *true* bearings.

CODE VII.

The State of the Sky at 8 A.M. mean time a the 75th meridian of west longitude:

0. Sky quite clear.

1. Sky quarter clouded.

2. Sky half clouded.

3. Sky three-quarters clouded.

4. Sky entirely overcast.

5. Rain falling.

6. Snow or hail falling.

7. Haze or mist.

8. Fog.

9. Thunderstorm.

CODE VIII.—*Height of Barometer.*

The reading of the mercury barometer is to be corrected for index error, and reduced to 0° C. and sea level. A table of corrections is given below.

The corrected reading is coded by omitting the first figure of the barometer reading in tenths of a millimetre: for example 761.2 mm. is coded as 612.

A table for converting hundredths of an inch to tenths of a millimetre is given below.

Code IX.

Air Temperature is coded in two figures according to the following table:—

Degrees Centigrade.	Degrees Fahrenheit.	Code No.	Degrees Centigrade.	Degrees Fahrenheit	Code No.
—15·0	5·0	00	10·0	50·0	50
—14·5	5·9	01	10·5	50·9	51
—14·0	6·8	02	11·0	51·8	52
—13·5	7·7	03	11·5	52·7	53
—13·0	8·6	04	12·0	53·6	54
—12·5	9·5	05	12·5	54·5	55
—12·0	10·4	06	13·0	55·4	56
—11·5	11·3	07	13·5	56·3	57
—11·0	12·2	08	14·0	57·2	58
—10·5	13·1	09	14·5	58·1	59
—10·0	14·0	10	15·0	59·0	60
— 9·5	14·9	11	15·5	59·9	61
— 9·0	15·8	12	16·0	60·8	62
— 8·5	16·7	13	16·5	61·7	63
— 8·0	17·6	14	17·0	62·6	64
— 7·5	18·5	15	17·5	63·5	65
— 7·0	19·4	16	18·0	64·4	66
— 6·5	20·3	17	18·5	65·3	67
— 6·0	21·2	18	19·0	66·2	68
— 5·5	22·1	19	19·5	67·1	69
— 5·0	23·0	20	20·0	68·0	70
— 4·5	23·9	21	20·5	68·9	71
— 4·0	24·8	22	21·0	69·8	72
— 3·5	25·7	23	21·5	70·7	73
— 3·0	26·6	24	22·0	71·6	74
— 2·5	27·5	25	22·5	72·5	75
— 2·0	28·4	26	23·0	73·4	76
— 1·5	29·3	27	23·5	74·3	77
— 1·0	30·2	28	24·0	75·2	78
— 0·5	31·1	29	24·5	76·1	79
0·0	32·0	30	25·0	77·0	80
0·5	32·9	31	25·5	77·9	81
1·0	33·8	32	26·0	78·8	82
1·5	34·7	33	26·5	79·7	83
2·0	35·6	34	27·0	80·6	84
2·5	36·5	35	27·5	81·5	85
3·0	37·4	36	28·0	82·4	86
3·5	38·3	37	28·5	83·3	87
4·0	39·2	38	29·0	84·2	88
4·5	40·1	39	29·5	85·1	89
5·0	41·0	40	30·0	86·0	90
5·5	41·9	41	30·5	86·9	91
6·0	42·8	42	31·0	87·8	92
6·5	43·7	43	31·5	88·7	93
7·0	44·6	44	32·0	89·6	94
7·5	45·5	45	32·5	90·5	95
8·0	46·4	46	33·0	91·4	96
8·5	47·3	47	33·5	92·3	97
9·0	48·2	48	34·0	93·2	98
9·5	49·1	49	34·5	94·1	99

Code X.—*Barometric Tendency.*

By the "barometric tendency at a given hour" is meant the amount by which the barometer has changed during the preceding three hours. It is to be expressed in millimetres. For example, the barometric tendency at 8 A.M. could be obtained by comparing the reading taken at that hour, say 755.7 mm., with a reading taken at 5 A.M., say 759.3 mm. In this case the barometric tendency would be expressed by a fall of 3.6 millimetres. As a general rule the barometric tendency is to be determined from the trace of the barograph.

The barometric tendency is coded in two figures, according to the following table:—

Rise in Barometer.		Code No.	Fall in Barometer.		Code No.
Millimetres.	inches.		Millimetres.	Inches.	
0·0—0·4	0·00—0·01	01	0·0—0·4	0·00—0·01	51
0·5—0·9	0·02—0·03	02	0·5—0·9	0·02—0·03	52
1·0—1·4	0·04—0·05	03	1·0—1·4	0·04—0·05	53
1·5—1·9	0·06—0·07	04	1·5—1·9	0·06—0·07	54
2·0—2·4	0·08—0·09	05	2·0—2·4	0·08—0·09	55
2·5—2·9	0·10—0·11	06	2·5—2·9	0·10—0·11	56
3·0—3·4	0·12—0·13	07	3·0—3·4	0·12—0·13	57
3·5—3·9	0·14—0·15	08	3·5—3·9	0·14—0·15	58
4·0—4·4	0·16—0·17	09	4·0—4·4	0·16—0·17	59
4·5—4·9	0·18—0·19	10	4·5—4·9	0·18—0·19	60
5·0—5·4	0·20—0·21	11	5·0—5·4	0·20—0·21	61
5·5—5·9	0·22—0·23	12	5·5—5·9	0·22—0·23	62
6·0—6·4	0·24—0·25	13	6·0—6·4	0·24—0·25	63
6·5—6·9	0·26—0·27	14	6·5—6·9	0·26—0·27	64
7·0—7·4	0·28—0·29	15	7·0—7·4	0·28—0·29	65
7·5—7·9	0·30—0·31	16	7·5—7·9	0·30—0·31	66
8·0—8·4	0·32—0·33	17	8·0—8·4	0·32—0·33	67
8·5—8·9	0·34—0·35	18	8·5—8·9	0·34—0·35	68
9·0—9·4	0·36—0·37	19	9·0—9·4	0·36—0·37	69
9·5—9·9	0·38—0·38	20	9·5—9·9	0·38—0·38	70
10·0—10·4	0·39—0·40	21	10·0—10·4	0·39—0·40	71
10·5—10·9	0·41—0·42	22	10·5—10·9	0·41—0·42	72
11·0—11·4	0·43—0·44	23	11·0—11·4	0·43—0·44	73
11·5—11·9	0·45—0·46	24	11·5—11·9	0·45—0·46	74
12·0—12·4	0·47—0·48	25	12·0—12·4	0·47—0·48	75
12·5—12·9	0·49—0·50	26	12·5—12·9	0·49—0·50	76
13·0—13·4	0·51—0·52	27	13·0—13·4	0·51—0·52	77
13·5—13·9	0·53—0·54	28	13·5—13·9	0·53—0·54	78
14·0—14·4	0·55—0·56	29	14·0—14·4	0·55—0·56	79
14·5—14·9	0·57—0·58	30	14·5—14·9	0·57—0·58	80
15·0—15·4	0·59—0·60	31	15·0—15·4	0·59—0·60	81
15·5—15·9	0·61—0·62	32	15·5—15·9	0·61—0·62	82
16·0—16·4	0·63—0·64	33	16·0—16·4	0·63—0·64	83
16·5—16·9	0·65—0·66	34	16·5—16·9	0·65—0·66	84
17·0—17·4	0·67—0·68	35	17·0—17·4	0·67—0·68	85
17·5—17·9	0·69—0·70	36	17·5—17·9	0·69—0·70	86
18·0—18·4	0·71—0·72	37	18·0—18·4	0·71—0·72	87
18·5—18·9	0·73—0·74	38	18·5—18·9	0·73—0·74	88
19·0—19·4	0·75—0·76	39	19·0—19·4	0·75—0·76	89
19·5—19·9	0·77—0·78	40	19·5—19·9	0·77—0·78	90
20·0—20·4	0·79—0·80	41	20·0—20·4	0·79—0·80	91
20·5—20·9	0·81—0·82	42	20·5—20·9	0·81—0·82	92
21·0—21·4	0·83—0·84	43	21·0—21·4	0·83—0·84	93
21·5—21·9	0·85—0·86	44	21·5—21·9	0·85—0·85	94
22·0—22·4	0·87—0·88	45	22·0—22·4	0·87—0·88	95
22·5—22·9	0·89—0·90	46	22·5—22·9	0·89—0·90	96
23·0—23·4	0·91—0·92	47	23·0—23·4	0·91—0·92	97
23·5—23·9	0·93—0·94	48	23·5—23·9	0·93—0·94	98
24·0—24·4	0·95—0·96	49	The barometric tendency cannot be reported.		99

Code XI.—*Sea Surface Temperature.*

Sea surface temperature to tenths of a degree Centigrade, is coded by three figures, or, when necessary, by two figures preceded by zero. If the temperature is negative, the first of these three figures is 5.

For example:—

— 2.2° C. is coded as 522.
+ 1.0° C. " 010.
+ 15.6° C " 156.

Table of Corrections for reducing Readings of Mercury Barometers to 0° C. and to Sea Level.

Note.—The barometric reading should first be corrected for index error. This error may be neglected if it is less than 0·3 mm.
The + sign indicates that the correction is to be added to the barometric reading
The − sign indicates that the correction is to be *subtracted*.

Temperature by the thermometer attached to the barometer.	− 4° C. 24·8 °F.	− 2° C. 28·4° F.	0° C. 32° F.	+ 2° C. 35·6° F.	4° C. 39·2° F.	6° C. 42·8° F.	8° C. 46·4° F.	10° C. 50° F.	12° C. 53·6° F.	14° C. 57·2° F.	16° C. 60·8° F.	18°C. 64·4° F.	20° C. 68° F.	22° C. 71·6° F.	24° C. 75·2°F.	26° C. 78·8° F.	28° C. 82·4° F.
	Corrections to be made.																
Height of barometer cistern above sea level.																	
Metres.	Ft.	In.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.
0	0	0	+0·5	+0·3	0·0	−0·2	−0·5	−0·7	−1·0	−1·2	−1·5	−1·7	−2·0	−2·2	−2·5	−2·7	−3·0	−3·2	−3·5
1	3	3	+0·6	0·4	+0·1	0·1	0·4	0·6	0·9	1·1	1·4	1·6	1·9	2·1	2·4	2·6	2·9	3·1	3·4
2	6	7	+0·8	0·5	0·3	0·0	0·3	0·5	0·7	1·0	1·2	1·5	1·7	2·0	2·2	2·5	2·8	3·0	3·2
3	9	10	+0·9	0·6	0·4	+0·1	0·1	0·4	0·6	0·9	1·1	1·4	1·6	1·9	2·1	2·4	2·6	2·9	3·1
4	13	1	+1·0	0·8	0·5	0·2	0·0	0·3	0·5	0·8	1·0	1·2	1·5	1·7	2·0	2·2	2·5	2·8	3·0
5	16	5	+1·2	0·9	0·7	0·4	+0·1	0·1	0·4	0·6	0·9	1·1	1·4	1·6	1·9	2·1	2·4	2·7	2·9
6	19	8	+1·3	1·0	0·8	0·5	0·2	0·0	0·3	0·5	0·8	1·0	1·3	1·5	1·8	2·0	2·3	2·6	2·8
7	22	0	+1·4	1·2	0·9	0·6	0·3	+0·1	0·1	0·4	0·6	0·9	1·1	1·4	1·6	1·9	2·2	2·4	2·7
8	26	3	+1·5	1·3	1·0	0·7	0·5	0·2	0·0	0·3	0·5	0·8	1·0	1·3	1·5	1·8	2·1	2·3	2·6
9	29	6	+1·7	1·4	1·2	0·8	0·6	0·3	+0·1	0·2	0·4	0·6	0·9	1·1	1·4	1·6	2·0	2·2	2·5
10	32	10	+1·8	1·6	1·3	1·0	0·7	0·5	0·2	0·0	0·3	0·5	0·8	1·0	1·3	1·5	1·9	2·1	2·4
11	36	1	+1·9	1·7	1·4	1·1	0·8	0·6	0·3	+0·1	0·2	0·4	0·7	0·9	1·2	1·4	1·8	2·0	2·2
12	39	4	+2·0	1·8	1·5	1·2	1·0	0·7	0·5	0·2	0·0	0·3	0·5	0·8	1·1	1·3	1·6	1·9	2·1
13	42	8	+2·2	1·9	1·7	1·3	1·1	0·8	0·6	0·3	+0·1	0·2	0·4	0·7	0·9	1·2	1·5	1·8	2·0
14	45	11	+2·3	2·0	1·8	1·5	1·2	0·9	0·7	0·4	0·2	0·0	0·3	0·6	0·8	1·1	1·4	1·6	1·9
15	49	3	+2·4	2·2	1·9	1·6	1·4	1·1	0·8	0·6	0·3	+0·1	0·2	0·5	0·7	1·0	1·3	1·5	1·8
16	52	6	+2·5	2·3	2·0	1·7	1·5	1·2	0·9	0·7	0·4	0·2	0·1	0·1	0·6	0·9	1·2	1·4	1·6
17	55	9	+2·6	2·4	2·1	1·9	1·6	1·3	1·1	0·8	0·6	0·3	+0·1	0·3	0·5	0·8	1·0	1·3	1·5
18	59	1	+2·8	2·5	2·3	2·0	1·7	1·4	1·2	0·9	0·7	0·4	0·2	0·1	0·4	0·6	0·9	1·2	1·4
19	62	4	+2·9	2·6	2·4	2·1	1·9	1·5	1·3	1·0	0·8	0·6	0·3	0·0	0·3	0·5	0·8	1·0	1·3
20	65	7	+3·0	2·8	2·5	2·3	2·0	1·7	1·4	1·2	0·9	0·7	0·4	+0·1	0·2	0·4	0·7	0·9	1·2
21	68	11	+3·1	2·9	2·6	2·4	2·1	1·8	1·5	1·3	1·0	0·8	0·5	0·2	0·1	0·3	0·6	0·8	1·1
22	72	2	+3·3	3·0	2·8	2·5	2·2	1·9	1·7	1·4	1·2	0·9	0·6	0·3	+0·1	0·2	0·4	0·7	0·9
23	75	6	+3·4	3·1	2·9	2·6	2·4	2·1	1·8	1·5	1·3	1·0	0·8	0·4	0·2	0·1	0·3	0·6	0·8

Table for converting barometric readings in inches into millimetres.

Inches and Tenths.	Hundreths of an Inch.									
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.	Mm.
27·0	685·8	686·0	686·3	686·6	686·8	687·1	687·3	687·6	687·8	688·1
·1	688·3	688·6	688·8	689·1	689·3	689·6	689·9	690·1	690·4	690·6
·2	690·9	691·1	691·4	691·6	691·9	692·1	692·4	692·7	692·9	693·2
·3	693·4	693·7	693·9	694·2	694·4	694·7	694·9	695·2	695·4	695·7
·4	696·0	696·2	696·5	697·7	697·0	697·2	697·5	697·7	697·9	698·2
·5	698·5	698·7	699·0	699·3	699·5	699·8	700·1	700·3	700·5	700·9
·6	701·0	701·3	701·5	701·8	702·0	702·3	702·6	702·8	703·1	703·8
·7	703·6	703·8	704·1	704·3	704·6	704·8	705·1	705·4	705·6	705·3
·8	706·1	706·4	706·6	706·9	707·1	707·4	707·6	707·9	708·1	708·4
·9	708·7	708·9	709·2	709·4	709·7	709·9	710·2	710·4	710·7	710·9
28·0	711·2	711·4	711·7	712·0	712·2	712·5	712·7	713·0	713·2	713·5
·1	713·7	714·0	714·2	714·5	714·7	715·0	715·3	715·5	715·8	716·0
·2	716·3	716·5	716·8	717·1	717·3	717·5	717·8	718·0	718·3	718·6
·3	718·8	719·1	719·3	719·6	719·8	720·1	720·3	720·6	720·8	721·1
·4	721·4	721·6	721·9	722·1	722·4	722·6	722·9	723·1	723·4	723·6
·5	723·9	724·1	724·4	724·7	724·9	725·2	725·4	725·7	725·9	726·2
·6	726·4	726·7	726·9	727·2	727·4	727·7	728·0	728·2	728·5	728·7
·7	729·0	729·2	729·5	729·7	729·9	730·2	730·5	730·7	731·0	731·3
·8	731·5	731·8	732·0	732·3	732·5	732·8	733·0	733·3	733·5	733·8
·9	734·1	734·3	734·6	734·8	735·1	735·3	735·6	735·8	736·1	736·3
29·0	736·6	736·8	737·1	737·4	737·6	737·9	738·1	738·4	738·6	738·9
·1	739·1	739·4	739·6	739·9	740·1	740·4	740·7	740·9	741·2	741·4
·2	741·7	741·9	742·2	742·4	742·7	742·9	743·2	743·4	743·7	744·0
·3	744·2	744·5	744·7	745·0	745·2	745·5	745·7	745·9	746·2	746·5
·4	746·8	747·0	747·3	747·5	747·7	748·1	748·3	748·5	748·8	749·0
·5	749·3	749·5	749·8	750·1	750·3	750·6	750·8	751·1	751·3	751·6
·6	751·8	752·1	752·3	752·6	752·8	753·1	753·4	753·6	753·9	754·1
·7	754·4	754·6	754·8	755·1	755·4	755·6	755·9	756·1	756·4	756·7
·8	756·9	757·2	757·4	757·7	757·9	758·2	758·4	758·7	758·9	759·2
·9	759·5	759·7	760·0	760·2	760·5	760·7	761·0	761·2	761·5	761·7
30·0	762·0	762·2	762·5	762·8	763·0	763·3	763·5	763·8	764·0	764·3
·1	764·5	764·8	765·0	765·3	765·5	765·8	766·1	766·3	766·6	766·8
·2	767·1	767·3	767·6	767·8	768·1	768·3	768·6	768·8	769·1	769·4
·3	769·6	769·9	770·1	770·4	770·6	770·9	771·1	771·4	771·6	771·9
·4	772·2	772·4	772·7	772·9	773·2	773·4	773·7	773·9	774·2	774·4
·5	774·7	774·9	775·2	775·5	775·7	776·0	776·2	776·5	776·7	777·0
·6	777·2	777·5	777·7	778·0	778·2	778·5	778·8	779·0	779·3	779·5
·7	779·8	780·8	780·3	780·5	780·8	781·0	781·3	781·5	781·8	782·1
·8	782·3	782·6	782·8	783·1	783·3	783·6	783·8	784·1	784·3	784·6
·9	784·9	785·1	785·4	785·6	785·9	786·2	786·4	786·6	786·9	787·1
31·0	787·4	787·6	787·9	788·2	788·4	788·7	788·9	789·2	789·4	789·7
·1	789·9	790·2	790·4	790·7	790·9	791·2	791·5	791·7	792·0	792·2
·2	792·5	792·7	793·0	793·2	793·5	793·7	794·0	794·2	794·5	794·8
·3	795·1	795·3	795·5	795·8	796·0	796·3	796·5	796·8	797·0	797·3
·4	797·6	797·8	798·1	798·3	798·6	798·8	799·1	799·3	799·6	799·8

TABLE for converting Minutes to Tenths of a Degree.

Minutes.	Tenths of a degree.
0–3	0
4–9	1
10–15	2
16–21	3
22–27	4
28–33	5
34–39	6
40–45	7
46–51	8
52–57	9
58–59	10

EXAMPLE.

Message containing Meteorological Information. Ice:

——	First Message.	Coded as	Second Message.	Coded as
Date of observation	21	21	22	22
Time of observation	13–15	5	3–6	2
Nature of ice or derelict	Single iceberg	1	Field ice	5
Position of ice or derelict	Latitude 44° 35'	446	Latitude 42° 58'	430
	Longitude 43° 15'	432	Longitude 47° 3'	470

Weather:

	First Message.	Coded as	Second Message.	Coded as
Date of observation	21	21	22	22
Position of ship	Latitude 45° 13'	825	Latitude 43° 47'	863
	Longitude 42° 5'		Longitude 46° 33'	
Direction and force of wind	E.S.E. 5	26	S.W. 2	55
Set and velocity of current	N.W. 2 m-h	82	S.S.E. .1 m-h.	39
Weather	Sky clear	0	Fog	8
Barometer	765·3 mm.	653	753·2 mm.	532
Air temperature	15·3° C.	61	9·8° C.	50
Barometri tendency	Rise ·8	02	Fall 2·7	56
Sea-surface temperature	1·4° C.	014	— ·7° C.	507

The Code of the above message sent to the Meteorological Office would thus be:—

Meteorology: Ice; 21514, 46432, 22254, 30470: Weather; 21825, 26820, 65361, 02014: 22863, 55398, 53250, 56507.

Article II.

SAFETY SIGNAL.

The radiotelegraph stations which have to transmit to ships information involving safety of navigation and being of an urgent character (icebergs, derelicts, cyclones, typhoons, sudden changes in the position or form of fixed obstructions or of landing marks) shall make use of the following signal, called the safety signal, repeated at short intervals ten times at full power:

— — — (T T T)

In principle, all wireless stations receiving the safety signal, shall, if the transmission of messages by them would interfere with the receipt by any other station of the safety signal and the following safety message, keep silence, in order to allow all interested stations to receive that message. This does not apply to cases of distress.

The safety message shall be transmitted one minute after the safety signal has been sent out, and shall be repeated thereafter three times at intervals of ten minutes.

The Governments of the Contracting States will select the stations which are to send out to mariners safety information of an urgent character.

When the information in question has been sent out by stations performing the time service, it shall be again sent out after the transmission of the time signal and the weather report.

Article III.

MORSE CODE.

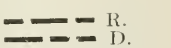
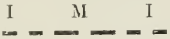
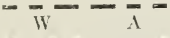
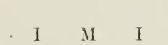
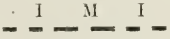
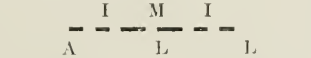
INTERNATIONAL SIGNALS.

These signals may be made at night or in thick weather, either by long and short flashes of light, or by long and short sounds on a steam whistle, siren, fog-horn, &c., or during the day by flag waving.

1.—URGENT AND IMPORTANT SIGNALS.

You are standing into danger	– – —
I want assistance; remain by me	– – – —
Have encountered ice	– — —
Your lights are out (*or*, want trimming)	– — — –
The way is off my ship; you may feel your way past me	– — –
Stop (*or*, heave to); I have something important to communicate	– — – –
Am disabled; communicate with me	– – — –

2.—GENERAL SIGNALS.

Meaning.	Signal.	Equivalent Letters and How Made.	How answered.
Preparative.....	&c.	A succession of E's in one group	By the general answer T.
Answer.....		T (singly).	
Spelling.....		F F in one group	By the general answer T.
Use International Code Signals		M M M in one group	By the general answer T.
International Code Flag Sign		M M in one group	
Break sign.....		I I as separate letters.	
Stop.....		I I I as separate letters.	
Finish of a message.....		V E as one group	 R. D. As separate letters.
Erase sign.....	&c.	A succession of E's as separate letters	By a succession of E's as separate letters.
Annul.....	W W	W W as one group	By W W as one group.
Repeat word after (when a single word is required)	I M I  W A  Followed by the word preceding the one required.	I M I as one group W A as separate letters	By the general answer T.
Repeat all after— (if more than one word is required)	I M I  A A 	I M I as one group A A as separate letters	By the general answer T.
Repeat all— (if the whole message is to be repeated)	I M I A L L 	I M I as one group A L L as separate letters.	By the general answer T.

3.—NATIONALITY SIGNALS.

Meaning.	Signal.	Equivalent Letters and How Made.
American		C D as separate letters.
Argentine		C G " "
Austro-Hungarian		C F " "
Belgian		D C " "
Brazilian		D E " "
British		F.
Bulgarian		D F as separate letters.
Chilian		D G " "
Chinese		E C " "
Colombian		E D " "
Danish		E F " "
Dutch		E G " "
French		E.
German		G.
Greek		M M in one group followed by D.
Italian		C E as separate letters.
Japanese		C.
Mexican		F C as separate letters.
Norwegian		M M in one group followed by C.
Peruvian		F D as separate letters.
Portuguese		F E " "
Russian		D.
Siamese		F G as separate letters.
Spanish		G C " "
Swedish		M M in one group followed by E.
Turkish		G D as spearate letters.
Uruguyan		G E " "
Venezuelan		G F " "

4.—INSTRUCTIONS.

1. THE URGENT AND IMPORTANT SIGNALS may be made without the Preparative Signal being answered if it is supposed that the person addressed cannot reply, or in other special circumstances; but in this case a pause should be made between the Preparative Signal and the message.

2. THE SIGNAL ..--.. (FF) is used previous to any letters which are intended to spell words.

3. THE SIGNAL ---.---.--- (MMM) is used previous to any message sent by means of the International Code of Signals.

4. THE SIGNAL --.-- (MM) means the Code Flag of the International Code of Signals, and is used as indicated in the Code Book.

5. THE BREAK SIGN is used between the address of the receiver and the text of the message, and after the message if the name of the sender is to be signalled.

6. THE STOP is used, where necessary, in the text of the signal.

7. THE ERASE is used to erase the last word or signal group, sent by mistake.

8. THE ANNUL is used to negative *all* the message.

9. METHOD OF ANSWERING. Each word or signal group, when understood, is to be answered by one long flash — (T).

If a word or signal group is not answered, the sender is to repeat it until answered by a long flash.

At the end of the message, if understood, the receiver will make -.-.-- (RD).

The Erase and Annul signs are to be answered by their own signs.

10. THE NATIONALITY SIGNAL is made immediately after the answer to the Preparatory Signal has been received, to indicate the nationality of the vessel making the signal. It is answered by the nationality signal of the vessel receiving the message.

Article IV.

A printed copy of the code of urgent and important signals shall be placed in a prominent position in the chart room of every ship.

CONSTRUCTION.

Article V.

Definitions.

The meaning of the Principal technical and other expressions contained in this Convention under the Title of Construction, and in these Regulations which are appended thereto, is as follows:

(1.) The *load water line* is that used in determining the sub-division of the vessel.

(2.) The *length* of the vessel is the extreme length at the load water line.

(3.) The *breadth* of the vessel is the extreme width from outside of frame to outside of frame at or below the load water line.

(4.) The *bulkhead deck* is the uppermost continuous deck to which all transverse water-tight bulkheads are carried.

(5.) The *margin line* is a line drawn parallel to the bulkhead deck at side line, and 76 millimetres (equivalent to three inches) below the upper surface of that deck at side.

(6.) The *draught* is the vertical distance from the top of keel amidships to the load water line.

(7.) The *freeboard* is the vertical distance from the load water line to the margin line amidships.

(8.) The *depth* of the vessel is the sum of the draught and freeboard as above defined.

(9.) The *sheer* of the bulkhead deck at any point is the vertical distance between the beam at side line at that point and a line drawn parallel to the load water line at the height of the beam at side line amidships.

(10.) If *block coefficient of fineness of displacement to load water line* is used, this coefficient shall be determined as follows:—

$$\frac{\text{Volume of displacement to moulded lines.}}{\text{Length} \times \text{Breadth} \times \text{Draught.}}$$

(11.) The *permeability* of a space is the percentage of that space which can be occupied by water.

The volume of a compartment which extends above the margin line shall be measured only to the height of that line. Volumes shall be understood as volumes to moulded lines.

(12.) The *machinery space* is to be taken as extending in length between the extreme main transverse watertight bulkheads bounding the spaces devoted to the main and auxiliary propelling machinery, including boilers when installed.

Article VI.

Floodable Length.

The floodable length at any point of the length of a vessel shall be determined taking into consideration form, draught, and other limiting characteristics of the vessel in question. This floodable length for a given point in a vessel with a continuous bulkhead deck is the maximum percentage of the length of the vessel (having its centre at the point in question) which can be flooded under the definite assumptions hereafter set forth in article VII without the ship being submerged beyond the margin line. In the case of vessels not having a continuous bulkhead deck, the floodable length must be such as to secure to the vessel in question, for each portion of its length, and for all conditions of trim after damage, a measure of safety at least equal in effectiveness to that laid down for the vessel with continuous bulkhead deck.

Article VII.

Permeability.

The definite assumptions referred to in article VI relate to the permeabilities of the spaces in question below the margin line. In determining the floodable length a uniform average permeability shall be used throughout the whole length of each of the three following portions of the vessel:—

(1.) The machinery space;

(2.) The portion forward of the machinery space; and

(3.) The portion abaft the machinery space.

For steam vessels the permeability of the machinery space, including the double bottom in wake thereof, shall be taken as eighty per cent. For vessels fitted with internal combustion engines the corresponding permeability shall be taken as eighty-five per cent, unless it is proved by actual calculation that a lower figure may be adopted, provided that in no case shall that figure be less than eighty per cent.

The permeabilities for space forward and aft of the machinery space shall be as follows:—

(*a.*) Sixty per cent in cargo spaces, bunkers (permanent or reserve), store-rooms, baggage and mail rooms, chain-lockers, water-tight shaft or pipe tunnels, and fresh-water tanks above the double bottom. It must be proved that the spaces just enumerated are practicable for the purpose intended and that they are to be so used. Other spaces shall not be allowed to come under this section unless with the approval of the Administration.

(*b.*) Ninety-five per cent in passenger and crew spaces, peaks, trimming-tanks exclusively so used, double bottoms, and all other spaces not specifically appropriated to one of the purposes indicated in the foregoing section. If in a 'tween deck space enclosed by complete transverse permanent steel bulkheads any portion thereof is appropriated to passengers, the whole of that space shall be regarded as passenger space; and, similarly, 'tween deck spaces appropriated for the carriage of *either* passengers or cargo shall be regarded as passenger spaces.

Where the spaces before or abaft the machinery space below the margin line consist partly of spaces mentioned in section (*a*) and partly of spaces mentioned in section (*b*), the average percentage of permeability shall be determined separately for each end from the formula $95—35\ r$, where r is the ratio between the volume of the spaces mentioned in section (*a*) and the total volume of the space in the portion of the ship under consideration.

Article VIII.

Permissible Length of Compartments.

(1.) The maximum permissible length of one compartment having its centre at any point in the vessel's length is obtained from the floodable length (article VI) by multiplying that length by an appropriate factor, called the factor of sub-division.

(2.) This factor of sub-division depends on the length of the ship, and, for a given length, varies according to the nature of the service for which the ship is intended. This factor decreases in a regular and continuous manner—

(*a.*) As the length of vessel increases; and

(*b.*) As, for a given length, the vessel departs from the type of vessel engaged in a mixed cargo and passenger service, and approaches to the type of vessel primarily engaged in the transportation of passengers.

(3.) For each of the two types of vessels referred to in the previous paragraph (2) (*b*) the variation of the factor of sub-division may be expressed by a curve, of which the co-ordinates represent the length of the vessel and the value of the factor. The following table gives certain points on two curves the higher of which corresponds to the minimum requirements for the "mixed" type, and the lower to the minimum requirements for the "passenger" type.

TABLE.

A.	B.		C.	
	Metres.	Feet.	Metres.	Feet.
1·00	90	295	79	259
0·90	114	374	87	285
0·84	123	404	93	305
0·65	149	489	116	380
0·50	174	571	149	489
0·39	213	699	209	685
0·34	274	899	274	899

Column (A) gives the maximum permissible values of the factor of subdivision for the length of vessels given in Columns (B) and (C).

Column (B) is applicable to vessels engaged in a mixed cargo and passenger service.

Column (C) is applicable to vessels primarily engaged in the transportation of passengers.

(4.) For a given length, the value of the factor of subdivision appropriate to a vessel between the two extreme limits will be between the values of the factors determined by the two curves before mentioned, and will be automatically fixed by a "criterion of service" which is to form the subject of further study.

ARTICLE IX.

(1.) When the factor of subdivision is equal to or less than .5, it may be doubled in order to give at any point of the vessel's length the total length of two adjacent compartments; but, in that case, the length of the shorter compartment of any pair shall not be less than one-quarter of the total length so obtained. If one of the two adjacent compartments is situated inside the machinery space and the second is situated outside the machinery space, and the average permeability of the portion of the ship in which the second is situated differs from eighty per cent, the length of the pair of compartments shall be adjusted to the proper value by applying a suitable correction.

(2.) In no case whatever shall the length of any watertight compartment exceed 28 metres (equivalent to 92 feet).

(3.) When the factor of subdivision applicable to any vessel is less than ·84, but more than .5, the combined length of the two foremost compartments shall not exceed the floodable length at the extreme forward end, provided also that the length of the second compartment is not greater than that permissible by Article VIII and not less than 3 metres (equivalent to 10 feet).

(4.) When the length of the vessel is more than 213 metres (equivalent to 699 feet) but less than 251 metres (equivalent to 823 feet) the floodable length at the forward end of the vessel shall be at least 20 per cent of the vessel's length; and the vessel, forward of a bulkhead placed either at the distance of the actual floodable length abaft the stem or not nearer to the stem than 20 per cent of the vessel's length, shall be divided into at least three compartments.

(5.) When the length of the vessel is equal to or greater than 251 metres (equivalent to 823 feet) the same method shall be adopted, but the floodable length shall be at least 28 per cent and the number of compartments at least four.

(6.) A bulkhead may be recessed transversely, provided the sides of the recess are at a sufficient distance from the sides of the vessel. Vertical steps are

inadmissible in the main transverse watertight bulkheads of vessels to which the sub-division rules of Article VIII apply where the factor of subdivision is greater than .5, unless such arrangements are made by additional sub-division as shall maintain the same measure of safety as that secured by bulkheads without steps. The total length of the steps in any bulkhead shall not exceed 2 per cent of the vessel's length, plus 3 metres (equivalent to 10 feet).

(7.) The existence of recesses or steps in a bulkhead shall in no case affect the permissible volumes of the compartments adjacent to such bulkhead, as determined by this and the preceding article.

Article X.

If the degree of safety of a vessel is greater than that prescribed by articles VIII and IX above, and if the owner requests that this fact be recorded on the Safety Certificate, in accordance with clause 4 of Article 17 of the Convention, this request shall be accompanied with all the data necessary to justify this claim.

In such case, the record shall state the fact that the subdivision is equal or superior to that provided for a vessel of equal length in Column (C) of the Table in article VIII, with an additional statement givingthe length of the vessel in Column (C) whose factor of subdivision according to the rules would be exactly equal to that employed in determining the subdivision of the vessel in question.

Values of length and factors for lengths not specifically stated in Columns (C) and (A) respectively of the Table in Article VIII shall be obtained by interpolation.

Article XI.

Peak and Machinery Space Bulkheads.

A forepeak bulkhead shall be fitted in all vessels to extend to the bulkhead deck, and to the weather deck in ships having continuous super-structures. This bulkhead shall be placed at a distance of not less than 5 per cent of the vessel's length from the stem at the load water-line. An afterpeak bulkhead and bulkheads dividing the machinery space from the cargo and passenger spaces shall also be fitted and carried up to the bulkhead deck. The afterpeak bulkhead may, however, be stopped below the bulkhead deck,provided that it shall at least be carried to the first deck above the load water-line, and a watertight flat shall be fitted from the afterpeak bulkhead to the stern on the level of the deck at which it stops, and also provided that the degree of safety of the vessel as regards sub-division is maintained.

Article XII.

Fireproof Bulkheads.

In portions of a vessel above the margin line there shall be fitted fireproof bulkheads which will serve to retard the spread of fire. The mean distance between any two consecutive bulkheads of this description shall not be greater than 40 metres (equivalent to 131 feet). Recesses in these bulkheads shall be made fireproof, and the openings in these bulkheads shall be closed by fireproof doors.

Article XIII.

Exits from Watertight Compartments.

(1.) In passenger and crew spaces a practicable means of escape for the occupants shall be provided from each watertight compartment.

(2.) There shall be a means of escape for the crew from each engine room, shaft tunnel and stokehold compartment independent of the watertight doors.

Article XIV.

Construction and Initial Testing of Watertight Bulkheads.

(1.) Watertight bulkheads shall be constructed in such a manner that they shall be capable of supporting, with a proper margin of resistance, the pressure due to a head of water up to the margin line.

(2.) Steps and recesses in bulkheads shall be as watertight and as strong as the bulkhead at the place where each occurs. Where frames or beams pass through a watertight deck or bulkhead, the watertightness shall be obtained by caulked angle chocks, or cast iron or steel chocks efficiently secured and rust-jointed, and not by wood or cement.

(3.) Testing main compartments by filling them with water is not compulsory. A complete examination of all bulkheads shall be made by a surveyor; and, in addition, a hose test shall be made in all cases.

(4.) The foremost and aftermost compartments shall be tested with water to a head up to the margin line. Double bottoms, deep tanks, and all compartments intended to hold liquids shall be tested with water at least to a head 2.44 metres (eight feet) above the top of the tank or to the load water line, whichever is the greater.

(5.) No change shall be made in the structure of the bulkheads after the completion of the survey unless with the permission of the Administration.

(6.) All regulations made for main transverse watertight bulkheads shall apply to longitudinal bulkheads, so far as is practicable.

Article XV.

Openings in Watertight Bulkheads.

(1.) The openings in watertight bulkheads shall be reduced to the smallest number compatible with the design and proper working of the vessel, and satisfactory means shall be provided for closing them.

(2.) No doors, sluice valves, manholes, or access openings are permitted—

(*a*.) In the collision bulkhead below the margin line.

(*b*.) In watertight transverse bulkheads separating two cargo spaces from one another, or a cargo space from a reserve bunker, except as provided in paragraph (6) of this article.

(3.) In the machinery space and apart from bunker and shaft-tunnel doors, not more than one door may be fitted in each main transverse bulkhead within the machinery space for intercommunication, but where more than one separate shaft tunnel is fitted a door may be cut for each tunnel. If a tunnel is fitted forward either for the purpose of pipes or as a communication passage it must be fitted with a watertight door.

(4.) The only types of watertight doors permissible are hinged doors, sliding doors, and doors of any other equivalent pattern, excluding plate doors secured only by bolts. A hinged door shall be fitted with lever-operated catches workable from each side of the bulkhead. A sliding-door may have a horizontal or vertical motion. If hand-operated only, it shall be fitted for operation at the door itself and also from an accessible position above the margin line. If operated by power it shall be fitted for operation by power from the bridge, and by hand at the door itself and from an accessible position above the margin line. A door dropping by its own weight, and fitted with a cataract cylinder or equivalent arrangement, may be considered as being operated by power, if capable of being released from the bridge.

(5.) In the case of watertight bunker doors, satisfactory arrangements shall be made by means of screens or otherwise, to prevent the coal from interferring with the closing of the doors.

(6.) Hinged watertight doors in passenger, crew, and working spaces are only permitted above a deck, the under side of which, at its lowest point at side, is at least 2.13 metres (7 feet) above the load water line, and they are not permitted in such spaces below that deck. Hinged watertight doors of especially heavy design may be fitted above the load water line in bulkheads between cargo 'tween-deck spaces, provided they are closed before the voyage commences, and are kept closed while at sea by efficient closing gear. None of these doors shall be fitted, even at the ends of the vessel, in a cargo 'tween-deck space in the amidship region of which 'tween-deck space it is not permissible to fit such doors.

(7.) All other watertight doors shall be sliding doors.

(8.)—(*a*.) When the number of watertight doors in the main transverse watertight bulkheads at or about the stokehold level in the machinery space exceeds five, excluding the watertight doors at the entrances of tunnels, all watertight doors situated below the load water line shall be capable of being simultaneously closed from a station situated on the bridge, and their opening and closing shall be indicated at that station. The simultaneous closing of these doors shall be preceded by a warning sound signal.

(*b*.) If watertight doors which have sometimes to be open at sea for the purpose of trimming coal are fitted between bunkers in the 'tween decks below the bulkhead deck, these shall be operated by power. The opening and closing of these doors shall be recorded in the official log.

(*c*.) When trunkways in connection with refrigerated cargo are carried through more than one main transverse watertight bulkhead, and the sills of the openings are less than 2.13 metres (7 feet) above the load water line, the watertight doors at such openings shall be operated by power.

(9.) Portable plates on bulkheads shall not be permitted except in machinery spaces. Such plates shall always be in place before the vessel proceeds to sea, and shall not be removed at sea except in case of urgent necessity. The greatest care shall be taken in replacing them to ensure that the joint shall be perfectly watertight.

(10.) All watertight doors shall be kept closed at sea except when necessarily opened for the working of the vessel, and shall always be ready to be immediately closed.

(11.) If trunkways for forced draught, for access from crew's accommodation to the stokehold or for any other purpose, are carried through the main transverse watertight bulkheads, the integrity of the watertight bulkheads shall be maintained by watertight doors or other equally effective means

(12.) Where electric-light cables, pipes, &c., are carried through transverse watertight bulkheads below the margin line, arrangements shall be made to ensure the integrity of the watertightness of the bulkheads.

(13.) Sluice valves in watertight bulkheads shall be reduced to the smallest number possible, and shall not be allowed except in positions where they are sufficiently accessible at all times to allow of its being ascertained that they are in good order. They shall be strongly constructed, efficiently fitted, and regularly inspected. Satisfactory provision shall be made for operating them from an accessible position above the margin line. Means shall be provided for indicating when they are open or shut.

Article XVI.

Openings in Ship's Side.

(1.) (*a.*) Subject to clause (*b*) below, when side scuttles are fitted below a deck the under side of which at its lowest point at side is less than 2.13 metres (7 feet) above the load water line, they shall be permanently fixed.

(*b.*) Side scuttles which are capable of being opened may be fitted in the positions defined in clause (*a*), provided that—

they shall be closed watertight and locked before the vessel proceeds to sea;

they shall not be opened while the vessel is at sea;

the time of opening such scuttles in port and of closing and locking them before the vessel proceeds to sea shall be entered in the official log;

the construction of such scuttles shall be such as to effectually prevent any person opening them without the consent of the master.

(*c.*) Glass lights in scuttles, when fitted in the positions defined in clause (*a*). shall be provided with efficient metal shutters.

(2.) In 'tween decks above the deck mentioned in paragraph (1) (*a*) of this article, opening side scuttles may be fitted except in spaces exclusively devoted to the carriage of cargo or coal.

(3.) No side scuttles shall be fitted in any spaces which are exclusively devoted to the carriage of cargo or coal.

(4.) All side scuttles which are not accessible while at sea shall be fitted with efficient metal covers and both the glass and the cover shall be kept closed while at sea

(5.) No automatic ventilating scuttles shall be permitted in the ship's side below the margin line.

(6.) All inlets and discharges in the side shall be arranged so as to prevent the accidental admission of water into the ship.

(7) The number of scuppers, sanitary discharges, and other similar openings in the side shall be reduced to the smallest number possible, either by making each discharge serve for as many as possible of the sanitary and other pipes or in any other satisfactory manner.

(8.) Discharges led through the ship's skin from spaces below the margin line shall be fitted with efficient and accessible means to prevent water from passing inwards. It is permissible to have either one valve, fitted with a means of working it at a distance, or two valves without such gear, one of them being always accessible. In either case, the accessibility of the valves or of the means of working shall be assured by their being situated not lower than the deck referred to paragraph (1) (*a*) of this article.

(9.) Gangway, cargo, and coaling ports shall not be fitted below the load water line. None of these ports shall be fitted, even towards the ends of the vessel, in a space below the lowest 'tween deck space in the amidship region of which it is permissible to fit such ports.

(10.) Gangway, cargo, and coaling ports in the vessel's side below the margin line shall be effectively closed and made secure before the vessel puts to sea, and kept closed during the navigation of the ship.

(11.) The inboard openings of ash-shoots, rubbish-shoots, &c., shall not be lower than the deck referred to in paragraph (1) (*a*) of this article. They may be permitted above this level if fitted, to the satisfaction of the Administration, with efficient covers, which shall be watertight if below the margin line. Such covers shall be so arranged as to prevent their being clogged in any way, and shall be at least as easily and effectively closed as watertight doors and side scuttles.

Article XVII.

Construction and Tests of Watertight Doors, Side Scuttles, &c.

(1.) The design and the materials used in the construction of watertight doors, side scuttles, coaling, cargo, and gangway ports, valves, pipes, ash and rubbish shoots shall be to the satisfaction of the Administration.

(2. Watertight doors shall be tested by a water pressure corresponding to the head prescribed for the bulkhead where the doors are located. The test shall be made before the vessel is put in service, and either before or after the door is fitted.

Article XVIII.

Construction and Initial Tests of Watertight Decks, Trunks, &c.

(1.) Watertight decks, trunks, and ventilators shall be of the same strength as the bulkhead at the place where they occur. The means used for making them watertight and the arrangements adopted for closing the various openings in them shall be satisfactory to the Administration. If watertight covers are used for closing these openings, they shall be fitted before the vessel goes to sea, and kept closed while the vessel is at sea.

(2.) A hose or flooding test shall be applied to watertight decks and a hose test to watertight trunks after completion. Watertight ventilators and trunks shall be carried to at least the margin line.

(3.) No change shall be made in the structure of watertight decks, trunks and ventilators after the completion of the survey unless with the permission of the Administration.

Article XIX.

Periodical Operation and Inspection of Watertight Doors, &c.

In all vessels defined in Article 2 of the Convention, drills for the operating of watertight doors, side scuttles, valves, and closing mechanisms of scuppers, ash-shoots and rubbish-shoots, shall take place periodically during the voyage. A complete drill shall take place before leaving port, a second as soon as practicable after leaving port, and others thereafter at least once a week during the voyage. Provided that all watertight power doors and hinged doors in main transverse bulkheads in use at sea shall be operated daily.

The watertight door system and all mechanisms and indicators connected therewith, and all valves the closing of which is necessary to maintain the watertightness of the compartment, shall be periodically inspected at sea at least once a week.

Article XX.

Entries in Official Log.

In all vessels defined in Article 2 of the Convention, hinged doors, portable plates, coaling, cargo and gangway ports, side scuttles, and other openings, which are required by the preceding rules to be kept closed while at sea, shall be closed before the vessel puts to sea. The time for closing, and time of opening (if permissible under these Regulations), shall be recorded in the official log.

A record of all drills and inspections required by Article XIX shall be entered in the official log, with an explicit record of any defects.

Article XXI.

Double Bottoms.

(1.) In vessels 61 metres (equivalent to 200 feet) and under 76 metres (equivalent to 249 feet) in length, a double bottom shall be fitted at least from the machinery space to the forepeak bulkhead, or as near thereto as practicable.

(2.) In vessels 76 metres (equivalent to 249 feet) and under 91.5 metres (equivalent to 300 feet) in length, a double bottom shall be fitted at least outside of the machinery space and shall extend to the fore and after peak bulkheads respectively, or as near thereto as practicable.

(3.) In vessels 91.5 metres (equivalent to 300 feet) and over in length, a double bottom shall be fitted amidship and shall extend to the fore and after peak bulkheads respectively, or as near thereto as practicable.

(4.) In vessels over 91.5 metres (equivalent to 300 feet) in length, the inner bottom shall be continued out to the ship's side in such manner as to protect the bilges.

(5.) In vessels over 213 metres (equivalent to 699 feet) in length, the double bottom, for at least half the vessel's length amidships and forward to the forepeak bulkhead, shall extend up the vessel's sides to a height above the top of the keel not less than 10 per cent of the vessel's moulded breadth.

(6.) Wells constructed in the double bottom in connection with drainage arrangements shall not be extended downwards from the inner bottom more than half the depth of the double bottom at that point. A well extending to the outer skin is, however, permitted at the after end of the shaft tunnels of screw vessels.

Article XXII.

Backing Power.

Vessels shall have sufficient backing power in order to secure proper control of the vessel under all conditions of navigability.

Article XXIII.

Auxiliary Steering Apparatus.

Vessels shall be provided with an auxiliary steering apparatus, which, however, may be of less power than the main apparatus, and need not be worked by steam or other mechanical power.

Article XXIV.

Initial and Subsequent Surveys of Vessels.

All vessels defined in Article 2 of the Convention shall be subjected at least to the following surveys, as specified in detail in Article XXV below:

(A) Before the vessel is put in service;

(B) Once each year; and

(C) Between the annual surveys, if required.

Article XXV.

The surveys referred to in the previous article shall be carried out as follows—

(*A*) *The survey before the vessel is put in service* shall include a complete inspection of the hull, machinery, and equipments, including the outside of the vessel's bottom, and the inside and outside of the boilers. The survey shall be such as to ensure that the arrangements, material, and scantlings of the hull, boilers, and their appurtenances, main and auxiliary machinery, life-saving appliances and other equipments, fully comply with the requirements of this Convention and of the detailed rules and regulations promulgated by the Government of the country to which the vessel belongs for vessels of the service in which she will be employed. The survey shall also be such as to ensure that the workmanship of all parts of the vessel and her equipments is in all respects satisfactory.

(*B*) *The annual survey* shall include an inspection of the whole of the hull, boilers, machinery, and equipments, including the outside of the vessel's bottom. The survey shall be such as to ensure that the vessel, as regards the hull, boilers, and their appurtenances, main and auxiliary machinery, life-saving appliances, and other equipments, is in satisfactory condition for the service in which she will be employed, and that she complies in all respects with the requirements of this Convention, and of the detailed rules and regulations promulgated as a result thereof by the Government of the country to which the vessel belongs.

(*C*) *A survey or inspection, either general or partial,* according to the circumstances, shall be made when any accident occurs or defect arises which affects the safety of the vessel or the efficiency or completeness of her life-saving appliances or other equipment, or when any important repairs or renewals are made; and the survey or inspection shall be such as to secure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the requirements of this Convention and of the detailed rules and regulations promulgated as a result thereof by the Government of the country to which the vessel belongs.

Article XXVI.

The detailed rules and regulations referred to in Article XXV shall prescribe the requirements to be observed as to the initial and subsequent hydraulic tests to which the main and auxiliary boilers, connections, steam-pipes, reservoirs which are subjected to high pressure, and fuel tanks for oil motors are to be submitted, as regards the test pressure to be applied, and the intervals between the tests.

Main and auxiliary boilers, connections, tanks, reservoirs, and steam-piping more than 102 millimetres (four inches) in diameter shall be satisfactorily tested by hydraulic pressure when new and thereafter at fixed intervals.

The initial and subsequent test pressures of the boilers shall not be less than one-and-a-half times the working pressure, or five atmospheres above the working pressure, whichever is the less. If the initial test pressure does not exceed five atmospheres above the working pressure, the interval between the subsequent tests shall not exceed two years. With a higher initial test pressure, the interval may be increased, and if the initial test pressure is double the working pressure, the interval may be six years, but it shall in no case exceed that period.

LIFE SAVING APPLIANCES AND FIRE PROTECTION:

ARTICLE XXVII.

Standard Types of Boats.

The standard types of boats are classified as follows:

Class.	Section.	Type.
I (Entirely rigid sides).	A	Open. Internal buoyancy only.
	B	Open. Internal and external buoyancy.
	C	Pontoon. Well deck; fixed watertight bulwarks.
II (Partially collapsible sides).	A	Open. Upper part of sides collapsible.
	B	Pontoon. Well deck; collapsible watertight bulwarks.
	C	Pontoon. Flush deck. collapsible watertight bulwarks.

Motor boats may be accepted if they comply with the requirements laid down for boats of the first class, but only to a limited number, which number shall be determined by each Government in its own regulations.

No boat may be approved the buoyancy of which depends upon the previous adjustment of one of the principal parts of the hull, or which has not a cubic capacity of at least 3.5 cubic metres (equivalent to 125 cubic feet).

ARTICLE XVIII.

Boats of the First Class.

The standard types of boats of the first class must satisfy the following conditions:—

1A. *Open boats with internal buoyancy only.*

The buoyancy of a wooden boat of this type shall be provided in the form of watertight air-cases, the total volume of which shall be at least equal to one-tenth of the cubic capacity of the boat.

The buoyancy of a metal boat of this type shall not be less than that required above for a wooden boat of the same cubic capacity, the volume of watertigh t air-cases being increased accordingly.

1B. *Open boats with internal and external buoyancy.*

The internal buoyancy of a wooden boat of this type shall be provided by watertight air-cases, the total volume of which is at least equal to seven and a half per cent. of the cubic capacity of the boat.

The external buoyancy may be of cork or of any other equally efficient material, but such buoyancy shall not be secured by the use of rushes, cork shavings, loose granulated cork or any other granulated substance, or by any means dependent upon inflation by air.

If the buoyancy is of cork, its volume, for a wooden boat, shall not be less than thirty-three thousandths of the cubic capacity of the boat; if of any material

other than cork, its volume and distribution shall be such that the buoyancy and stability of the boat are not less than that of a similar boat provided with buoyancy of cork.

The buoyancy of a metal boat shall be not less than that required above for a wooden boat of the same cubic capacity, the volume of air-cases and external buoyancy being increased accordingly.

1C. *Pontoon boats, in which persons cannot be accommodated below the deck, having a well deck and fixed watertight bulwarks.*

The area of the well deck of a boat of this type shall be at least 30 per cent of the total deck area. The height of the well deck above the water line at all points shall be at least equal to one-half per cent of the length of the boat, this height being increased to one and a half per cent of the length of the boat at the ends of the well.

The freeboard of a boat of this type shall be such as to give a reserve buoyancy of at least thirty-five per cent.

Article XXIX.

Boats of Second Class.

The standard types of boats of the second class must satisfy the following conditions:—

2A. *Open boats having the upper part of the sides collapsible.*

A boat of this type shall be fitted with watertight air-cases and external buoyancy, the volume of which, for each person which the boat is able to accommodate, shall be at least equal to the following amounts:—

	Cubic Decimeters.	Square feet.
Air cases	43	1.5
External Buoyancy (if of cork)	6	0.2

The minimum freeboard of boats of this type varies in accordance with their length; it is measured vertically to the top of the solid hull at the side amidships, from the water level when the boat is loaded.

The freeboard in fresh water shall not be less than the following amounts:—

Length of the Boat.		Minimum Freeboard.	
Metres.	Equivalent in feet to	Millimetres.	Equivalent in inches to
7·90	26	200	8
8·50	28	225	9
9·15	30	250	10

The freeboard of the boats of intermediate lengths is to be found by interpolation.

2B. *Pontoon boats having a well deck and collapsible bulwarks.*

All the conditions laid down for boats of type 1C are to be applied to boats of this type, which differ from those of type 1C only in regard to the bulwarks.

2C. *Pontoon boats, in which the persons cannot be accommodated below deck, having a flush deck and collapsible bulwarks.*

The minimum freeboard of boats of this type is independent of their lengths and depends only upon their depth. The depth of the boat is to be measured vertically from the underside of the garboard-strake to the top of the deck on the side amidships and the freeboard is to be measured from the top of the deck at the side amidships to the water line when the boat is loaded.

The freeboard in fresh water shall not be less than that given in the following table, which shall be applied without correction to boats having a mean sheer equal to three per cent of their length:—

Depth of Boat.		Minimum Freeboard.	
Millimetres.	Equivalent in inches, to	Millimetres.	Equivalent in inches, to
310	12	70	$2\frac{3}{4}$
460	18	95	$3\frac{3}{4}$
610	20	130	$5\frac{1}{8}$
760	30	165	$6\frac{1}{2}$

For intermediate depths the freeboard is obtained by interpolation.

If the sheer is less than the standard sheer defined above, the minimum freeboard is obtained by adding to the figures in the table one-seventh of the difference between the standard sheer and the actual mean sheer measured at the stem and stern post; no deduction is to be made from the freeboard on account of the sheer being greater than the standard sheer or on account of the camber of the deck.

Article XXX.

Motor Boats.

When motor boats are accepted, the volume of internal buoyancy and, when fitted, the external buoyancy, must be increased in accordance with the difference between the weight of the machinery and the weight of the additional persons which the boat could accommodate if the machinery were removed.

Article XXXI.

Arrangements for clearing Pontoon Lifeboats of Water.

All pontoon lifeboats shall be fitted with efficient means for quickly clearing the deck of water. The orifices for this purpose shall be such that the water cannot enter the boat through them when they are intermittently submerged. The number and size of the orifices shall be determined for each type of boat by a special test.

For the purpose of this test the pontoon boat shall be loaded with iron weights equal to all the persons the boat is deemed fit to carry and the weight of the equipment.

In the case of a boat 8.5 metres in length (equivalent to 28 feet) two tons of water shall be cleared from the boat in a time not exceeding the following:—

Type	1C	60 seconds.
"	2B	60 "
"	2C	20 "

In the case of a boat having a length greater or less than 8.5 metres (equivalent to 28 feet) the weight of water to be cleared in the same time shall be, for each type, directly proportional to the length of the boat.

Article XXXII.

Construction of Boats.

Open lifeboats of the first class (types 1A and 1B) must have a mean sheer at least equal to four per cent of their length.

The air-cases of open boats of the first class shall be placed along the sides of the boat; they may also be placed at the ends of the boat, but not in the bottom of the boat.

Pontoon lifeboats may be built of wood or metal. If constructed of wood, they shall have the bottom and deck made of two thicknesses with textile material between; if of metal, they shall be divided into watertight compartments with means of access to each compartment.

All boats shall be fitted for the use of a steering oar.

Article XXXIII.

Pontoon Rafts.

No type of pontoon raft may be approved unless it satisfies the following conditions:—

1. It should be reversible and fitted with bulwarks of wood, canvas or other suitable material on both sides. These bulwarks may be collapsible.
2. It should be of such size, strength and weight that it can be handled without mechanical appliances, and, if necessary, be thrown from the vessel's deck.
3 It should have not less than 85 cubic decimetres (equivalent to three cubic feet) of air-cases or equivalent buoyancy for each person whom it can accommodate.
4. It should have a deck area of not less than 3,720 square centimetres (equivalent to four square feet) for each person which it can accommodate and the platform should not be less than 15 centimetres (equivalent to six inches) above the water level when the raft is loaded.
5. The air-cases or equivalent buoyancy should be placed as near as possible to the sides of the raft.

Article XXXIV.

Capacity of Boats and Pontoon Rafts.

1. The number of persons which a boat of one of the standard types or a pontoon raft can accommodate is equal to the greatest whole number obtained

by dividing the capacity in cubic metres (or cubic feet), or the surface in square metres (or square feet), of the boat or of the raft by the standard unit of capacity, or unit of surface (according to circumstances), defined below for each type.

2. The cubic capacity in metres of a boat in which the number of persons is determined by the surface shall be assumed to be 0.283 time the number of persons which it is authorized to carry.

3. The standard units of capacity and surface are as follows:—

Unit of Capacity.	Cubic Metres.	Equivalent in Cubic feet.
Open boats, Type 1A	0·283	10
Open boats, Type 1B	0·255	9

Unit of Surface.	Square Metres.	Equivalent in Square Feet.
Open boats, Type 2 A		
Pontoon boats, Type 2 C	0·325	$3\frac{1}{2}$
" " Type 1C		
" " Type 2B	0.302	$3\frac{1}{4}$

4. The Government of each High Contracting Party has the right to accept in place of the figure 0.302 ($3\frac{1}{4}$), a smaller figure, if it is satisfied after trial that the number of persons for whom there is seating accommodation in the pontoon boat in question is greater than the number obtained by applying the above figure, provided always that the figure adopted in place of 0.302 may never be less than 0.279 (3).

The Government which accepts a lower figure in this way should communicate to the Governments of the other Contracting Parties particulars of the trial and drawings of the pontoon-boat in question.

Article XXXV.

Pontoon boats and pontoon rafts shall never be marked with a number of persons greater than that obtained in the manner specified in the present regulations.

This number shall be reduced:—

(1) When it is greater than the number of persons for which there is proper seating accommodation, this number being determined in such a way that the persons when seated do not interfere in any way with the use of the oars.

(2) When, in the case of boats other than those of the first two sections of the first class, the freeboard when the boat is loaded is less than the freeboard laid down for each type respectively. In such circumstances the number shall be reduced until the freeboard when the boat is loaded is at least equal to the standard freeboard laid down above.

In boats for types 1C and 2B the raised part of the deck at the sides of the well may be regarded as affording seating accommodation.

Article XXXVI.

Equivalents for and Weight of the Persons.

In the tests for determining the number of persons which a boat or pontoon raft can accommodate each person shall be an adult person wearing a life-jacket.

In the verifications of the freeboard the pontoon-boats shall be loaded with a weight of at least 75 kilogrammes (165) lbs. for each adult person that the boat or pontoon raft is allowed to carry.

In all cases two children under 12 years of age shall be reckoned as one person.

Article XXXVII.

Cubic capacity of Boats of the First Section of the First Class.

1. The cubic capacity of an open boat of type 1A or 1B shall be determined by Stirling's (Simpson's) Rule or by any other method giving the same degree of accuracy. The capacity of a square-sterned boat shall be calculated as if the boat has a pointed stern.

2. For example, the capacity in cubic metres (or cubic feet) of a boat, calculated by the aid of Stirling's Rule may be considered as given by the following formula:—

$$\text{Capacity} = \frac{l}{12}(4A + 2B + 4C)$$

l being the *length* of the boat in metres (or feet) from the inside of the planking or plating at the stem to the corresponding point at the stern post; in the case of a boat with square stern the length is measured to the inside of the transom. A, B, C equal respectively the *areas of the cross-sections* at the quarter length forward, amidships, and the quarter length aft, which correspond to the three points obtained by dividing l into four equal parts. (The areas corresponding to the two ends of the boat are considered negligible.)

The areas A, B, C shall be deemed to be given in square metres (or square feet) by the successive application of the following formula to each of the three cross-sections:—

$$\text{Area} = \frac{h}{12}(a + 4b + 2c + 4d + e)$$

h being the *depth* measured in metres (or in feet) inside the planking or plating from the keel to the level of the gunwhale, or, in certain cases, to a lower level as determined hereafter.

a, b, c, d, e equal the horizontal *breadths* of the boat measured in metres (or in feet) at the upper and lower points of the depth and at the three points obtained by dividing h into four equal parts (a and e being the extreme points, and c the middle point, of h.)

3. If the sheer of the gunwhale, measured at the two points situated at a quarter of the length of the boat from the ends, exceeds 1 per cent of the length of the boat, the depth employed in calculating the area of the cross-sections A or C shall be deemed to be the depth amidships plus 1 per cent of the length of the boat.

4. If the depth of the boat amidship exceeds 45 per cent. of the breadth, the depth employed in calculating the area of the amidship cross-section B shall be deemed to be equal to the latter figure, and the depth employed in calculating the areas of the quarter length sections A and C is obtained by increasing this

last figure by an amount equal to 1 per cent of the length of the boat, provided that in no case shall the depth employed in the calculation exceed the actual depths at these points.

5. If the depth of the boat is greater than 122 centimetres (equivalent to 4 feet) the number of persons given by the application of this rule shall be reduced in proportion to the ratio of that limit to the actual depth, until the boat has been tested afloat with that number of persons on board all wearing their life jackets.

6. Each Administration shall impose, by suitable formulæ, a limit for the number of persons allowed in boats with very fine ends and in boats very full in form.

7. Each Administration reserves the right to assign to a boat a capacity equal to the product of the length, the breadth and the depth multiplied to 0.6 (if it is satisfied that this formulæ does not give a greater capacity than that obtained by the above method.) The dimensions shall then be measured in the following manner:—

Length: From the inter-section of the outside of the planking or plating with the stem to the corresponding point at the stern post or, in the case of a square sterned boat, to the after side of the transom.

Breadth: From the outside of the planking at the point where the width of the boat is greatest.

Depth: Amidships inside the planking from the keel to the level of the gunwhale. But the depth used in calculating the cubic capacity may not in any case exceed 45 per cent of the breadth.

In all cases the ship owner has the right to require that the cubic capacity of the boat shall be determined by exact measurement.

8. The cubic capacity of a motor-boat is obtained from the gross capacity by deducting a volume equal to that occupied by the machinery.

Article XXXVIII.

The area of the deck of pontoon boats and open boats of the Second Class.

1. The area of the deck of a pontoon boat of type 1c, 2b, or 2c shall be determined by the method indicated below or by any other method giving the same degree of accuracy. The same rule is to be applied in determining the area within the fixed bulwarks of a boat of type 2a.

2. For example, the surface in square metres (or square feet) of a boat may be deemed to be given by the following formula:—

$$\text{Area} = \frac{l}{12}(2a+1.5b+4c+1.5d+2e).$$

l being the *length* in metres (or in feet) from the intersection of the outside of the planking or plating with the stem to the corresponding point at the stern post.

a, b, c, d, e equal the *horizontal breadths* in metres (or in feet) outside the planking at the points obtained by dividing l into four equal parts and sub-dividing the foremost and aftermost parts into two equal parts (a and e correspond to the extreme sub-divisions, c to the middle point of the length, and b and d to the intermediate points).

Article XXXIX.

Marking of Boats and Pontoon Rafts.

The dimensions of the boat, together with the number of persons which it is allowed to carry, shall be marked on it in clear permanent characters. These marks shall be specifically approved by the officers appointed to inspect the ship.

Pontoon raft shall be marked with the number of persons in the same manner.

Article XL.

Equipment of Boats and Pontoon Rafts.

1. The normal equipment of every boat consists of:—

(*a*) A single banked complement of oars and two spare oars; one set and a half of thole pins or crutches; a boat hook.

(*b*) Two plugs for each plug-hole (plugs are not required when proper automatic valves are fitted); a bailer and a galvanised iron bucket.

(*c*) A tiller or yoke and yoke lines.

(*d*) Two hatchets.

(*e*) A lamp filled with oil and trimmed.

(*f*) A mast or masts with at least one good sail, and proper gear for each. (This does not apply to motor lifeboats.)

(*g*) An efficient compass.

Pontoon lifeboats should have no plug-hole, but should be provided with at least two bilge-pumps.

In the case of a ship defined in Article 2 of the Convention, which carries passengers in the North Atlantic all the boats need not be equipped with masts, sails, and compasses, if the ship is provided with a radio-telegraph installation.

2. The normal equipment of every approved pontoon-raft consists of:—

(*a*) Four oars.

(*b*) Five rowlocks.

(*c*) A self-igniting lifebuoy light.

3. In addition every boat and pontoon-raft shall be equipped with:—

(*a*) A life-line securely becketted round the outside.

(*b*) A sea-anchor.

(*c*) A painter.

(*d*) A vessel containing five litres (equivalent to one gallon) of vegetable or animal oil. The vessel shall be so constructed that the oil can be easily distributed on the water, so arranged that it can be attached to the sea-anchor.

(*e*) A watertight receptacle containing one kilogram (equivalent to two pounds avoirdupoids) of provisions for each person.

(*f*) A watertight receptacle containing one litre (equivalent to one quart) for each person.

(*g*) A number of self-igniting "red lights" and a watertight box of matches.

Article XLI.

Davits.

Each set of davits shall have a boat of the first class attached to it, provided that the number of open boats of the first class attached to davits shall not be less than the minimum number fixed by the Table which follows.

If it is neither practicable nor reasonable to place on a ship the minimum number of sets of davits required, the Government of the country to which the

ship belongs may authorise a smaller number of sets of davits to be fitted, provided always that this number shall never be less than the minimum number of open boats of the first class required by the rules.

If a large proportion of the persons on board are accommodated in boats whose length is greater than 15 metres (equivalent to 50 feet) a further reduction in the number of sets of davits may be allowed as a special concession, if the Administration concerned is satisfied that the arrangements are in all respects satisfactory.

In all cases in which a reduction on the minimum number of sets of davits required by the rules is allowed, the owner of the ship in question shall be required to prove, by a test made in the presence of a surveyor appointed by the Government, that all the boats can be efficiently launched in a minimum time.

The conditions of this test shall be as follows:—

1. The ship is to be upright and in smooth water;
2. The time is the time required from the beginning of the removal of the boat covers, or any other operation necessary to prepare the boats for lowering, until the last boat or pontoon raft is afloat;
3. The number of men employed in the whole operation must not exceed the total number of boat hands that will be carried on the vessel under normal service conditions;
4. Each boat when being lowered must have on board at least two men and its full equipment as required by the rules.

The time allowed for putting all the boats into the water shall be fixed by a formula to be determined by the Government of each High Contracting Party, each Government undertaking to communicate its decision to the Governments of the other Contracting Parties.

Article XLII.

Additional Boats and Pontoon Rafts.

If the lifeboats attached to davits do not provide sufficient accommodation for all the persons on board, additional lifeboats of one of the standard types shall be provided. This addition shall bring the total capacity of the boats on the ship at least up to the greater of the two following amounts:—

(*a*) The minimum capacity required by the present Regulations;

(*b*) A capacity sufficient to accommodate seventy-five per cent of the persons on board.

The remainder of the accommodation required shall be provided either in boats of Class 1 or 2, or in pontoon rafts of an approved type.

Article XLIII.

Minimum Number of Davits and of Open Boats of the First Class.— Minimum Boat Capacity.

The following table fixes, according to the length of the ship:—

(*a*) *The minimum number of sets of davits to be provided*, to each of which must be attached a boat of the first class in accordance with Chapter VI, Life Saving Appliances, Article 47 of the Convention, and Article XLI above.

(*b*) *The minimum total number of open boats of the first class*, which must be attached to davits, in accordance with Article XLI above.

(c) *The minimum boat capacity required,* including the boats attached to davits, and the additional boats, in accordance with Article XLII above.

Registered length of the Ship.						(A.) Minimum number of sets of davits.	(B.) Minimum number of open boats of the First Class.	(C.) Minimum capacity of Life-boats.	
Metres.			Feet.					Cubic metres.	Cubic feet.
31 et au-dessous de		37	100 et au-dessous de		120	2	2	28	980
37	"	43	120	"	140	2	2	35	1·220
43	"	49	140	"	160	2	2	44	1·550
49	"	53	160	"	175	3	3	53	1·880
53	"	58	175	"	190	3	3	68	2·390
58	"	63	190	"	205	4	4	78	2·740
63	"	67	205	"	220	4	4	94	3·330
67	"	70	220	"	230	5	4	110	3·900
70	"	75	230	"	245	5	4	129	4·560
75	"	78	245	"	255	6	5	144	5·100
78	"	82	255	"	270	6	5	160	5·640
82	"	87	270	"	285	7	5	175	6·190
87	"	91	285	"	300	7	5	196	6·930
91	"	96	300	"	315	8	6	254	7·550
96	"	101	315	"	330	8	6	235	8·290
101	"	107	330	"	350	9	7	255	9·000
107	"	113	350	"	370	9	7	273	9·630
113	"	119	370	"	390	10	7	301	10·650
119	"	125	390	"	410	10	7	331	11·700
125	"	133	410	"	435	12	9	370	13·060
133	"	140	435	"	460	12	9	408	14·430
140	"	149	460	"	490	14	10	451	15·920
149	"	159	490	"	520	14	10	490	17·310
159	"	168	520	"	550	16	12	530	18·720
168	"	177	550	"	580	16	12	576	20·350
177	"	186	580	"	610	18	13	620	21·900
186	"	195	610	"	640	18	13	671	23·700
195	"	204	640	"	670	20	14	717	25·350
204	"	213	670	"	700	20	14	766	27·050
213	"	223	700	"	730	22	15	808	28·560
223	"	232	730	"	760	22	15	854	30·180
232	"	241	760	"	790	24	17	908	32·100
241	"	250	790	"	820	24	17	972	34·350
250	"	261	820	"	855	26	18	1·031	36·450
261	"	271	855	"	890	26	18	1·097	38·750
271	"	282	890	"	925	28	19	1·160	41·000
282	"	293	925	"	960	28	19	1·242	43·880
293	"	303	960	"	995	30	20	1·312	46·350
303	"	314	995	"	1030	30	20	1·380	48·750

When the length of the ship exceeds 314 metres (equivalent to 1,030 feet) the Government of the country to which the ship belongs shall determine the minimum number of sets of davits and of open boats of the first class of that ship; full particulars of its decision shall be communicated to the Governments of the other Contracting Parties.

Article XLIV.

Launching of Boats and Rafts.

The arrangements for launching boats on either side of the ship may be made either by means of appliances for transferring the boats or rafts from one side of the deck to the other, or by stowing some of the boats not under davits, or rafts, in rows across the deck or by any other equally efficient means.

The davits and other appliances for lowering the boats shall be placed on one or more decks in such positions that the handling of the boats can be efficiently carried out. They shall not be placed in the bows of the ships or in places where the close proximity of the propellers might constitute a danger to the boats at the time of launching. Boats may be stowed on one or more decks provided that proper measures are taken to prevent boats on an upper deck damaging those stowed below them.

If more than one boat is served by the same set of davits arrangements shall be made to prevent the falls fouling when they are recovered.

Article XLV.

Life-Jackets and Life-Buoys.

1. A life-jacket shall satisfy the following conditions:—

(*a*) It shall be of approved material and construction;

(*b*) It shall be capable of supporting in fresh water for 24 hours 6.8 kilogrammes of iron (equivalent to 15 pounds). Life-jackets the buoyancy of which depends on air compartments are not allowed.

2. A life-buoy shall satisfy the following conditions:—

(*a*) It shall be of solid cork or any other equivalent material;

(*b*) It shall be capable of supporting in fresh water for 24 hours at least 14 kilogrammes (equivalent to 31 pounds) of iron.

Life-buoys filled with rushes, cork shavings or granulated cork, or any other loose granulated material, or whose buoyancy depends upon air compartments which require to be inflated, are prohibited.

3. The minimum number of life-buoys to be provided is fixed by the following table:—

Length of the Ship.		Number of Buoys.
Metres.	Equivalent in Feet.	
Under 122	Under 400	12
122 and under 183	400 and under 600	18
183 and under 244	600 and under 800	24
244 and over	800 and over	30

4. All the buoys shall be fitted with beckets securely seized. At least one buoy on each side shall be fitted with a life-line of at least 27.5 metres (15 fathoms) in length. The number of luminous buoys shall not be less than one-half of the total number of lifebuoys carried, and in no case less than six. The lights shall be efficient self-igniting lights which cannot be extinguished in the water, and they shall be kept near the buoys to which they belong with the necessary means of attachment. The life-buoys must always be ready to be cast loose, and must not be permanently secured in any way.

5. All the life-buoys and life-jackets shall be so placed as to be readily accessible to all the persons on board; their position shall be plainly indicated so as to be known to the persons concerned.

The life-buoys shall always be capable of being cast loose, and shall not be permanently secured in any way.

Article XLVI.

Exemptions for Existing Ships.

The exemptions allowed in the case of existing ships, as provided by Article 52 of the Convention are as follows:—

(*a*) Until the 1st January, 1920, boats and rafts which have been accepted by the Administration of a Contracting State on board an existing ship may be accepted, respectively, in lieu of the lifeboats and life-crafts prescribed by the present Convention.

(*b*) Until the 1st January, 1920, the requirements that pontoon lifeboats should have the bottom and deck made in two thicknesses with textile material between, and that they should have the minimum freeboard specified need not be insisted upon in the case of pontoon boats accepted in accordance with the preceding paragraph (*a*).

(*c*) In the case of ships between 75 metres (245 feet) and 140 metres (460 feet) in length, the minimum number of sets of davits may be reduced by one, and in the case of ships of more than 140 metres (460 feet) in length, the minimum number of sets of davits may be reduced by one set on each side of the ship, below the figure given in Column B of the Table in Article XLIII above. These reductions shall only be allowed if ample provision is made for launching the boats:

(*d*) The provisions of Articles 42 and 49 of the Convention, respecting the launching of boats, shall not be applied to existing ships.

Article XLVII.

Certified Life-boatmen.

In order to obtain the special certificate provided for in Chapter VI Life Saving Appliances, Article 54 of the Convention, the applicant must prove that he has been trained in all the operations connected with launching life-boats, the use of oars; that he is acquainted with the practical handling of the boats themselves; and, further, that he is capable of understanding and answering the orders relative to life-boat service.

There shall be for each boat or pontoon raft a number of certified life-boatmen at least equal to that specified in the following table:—

If the boat or raft carries:	The minimum number of certified life-boatmen shall be—
Less than 61 persons	3
From 61 to 85 persons	4
From 86 to 110 persons	5
From 111 to 160 persons	6
From 161 to 210 persons	7

and, thereafter, one additional certified life-boatman for each additional 50 persons.

Article XLVIII.

Manning of Boats.

An officer, petty officer, or seaman shall be placed in charge of each boat or pontoon raft; he shall have a list of its crew, and shall see that the men placed under his orders are acquainted with their respective duties and stations.

A man capable of working the machinery shall be assigned to each motor boat.

One or more officers shall be told off for seeing that the boats, pontoon-rafts, and other life-saving appliances are at all times ready for use.

Article XLIX.

Fire Detection and Extinction.

1. A continuous patrol system shall be organized so that an outbreak of fire may be promptly detected.

2. Every ship shall be provided with powerful steam or equivalent pumps. On ships of less than 4,000 tons gross there shall be two, and on ships of 4,000 tons and over, three of these pumps. The pumps shall be capable of delivering a sufficient quantity of water in two powerful jets simultaneously in any part of the vessel, and shall be available for immediate use prior to leaving port.

3. The service pipes shall permit of two powerful jets of water being simultaneously directed on any part of a deck occupied by passengers and crew, when the atertight and fire doors are closed. The service pipes and hoses shall be of ample size and made of suitable material. The branches of the pipes shall be so placed on each deck that the fire hose can be easily coupled to them.

4. Provision shall be made whereby at least two powerful jets of water and an ample supply of steam may be simultaneously conveyed to every space filled with cargo. Provision for the supply of steam is not required in ships of less than 1,000 tons gross.

5. A sufficient number of portable fluid fire extinguishers shall be provided, at least two being carried in each machinery space.

The Governments of the High Contracting Parties may accept other types of extinguishers provided that the Government concerned is satisfied by actual trial that such extinguishers are as effective as the type referred to above. A Government which accepts a new type of extinguisher will send particulars of the apparatus and details of the trial to the Governments of the other Contracting Parties.

6. Two equipments consisting of a smoke helmet and a safety lamp shall be carried on board and kept in two different places.

7. The fire-extinguishing appliances shall be thoroughly examined at least once each year by a surveyor appointed by the Government.

Article L.

Muster List.

The muster list shall assign duties to the different members of the crew in connection with:—

(*a*) The closing of the watertight doors, valves, &c.

(*b*) The equipment of the boats and pontoon rafts generally.

(*c*) The launching of the boats attached to davits.

(*d*) The general preparation of the other boats and the pontoon rafts.
(*e*) The muster of the passengers.
(*f*) The extinction of fire.

The muster list shall assign to the members of the Stewards' Department their several duties in relation to the passengers at a time of emergency. These duties shall include:—

(*a*) Warning the passengers.
(*b*) Seeing that they are dressed and have put on their life-jackets in a proper manner.
(*c*) Assembling the passengers.
(*d*) Keeping order in the passages and on the stairways, and, generally controlling the movements of the passengers.

The muster list shall specify definite alarm signals for calling all the crew to their boat and fire stations and shall give full particulars of these signals.

Article LI.

Muster and Drills.

Musters of the crew at their boat and fire stations followed by boat and fire drills respectively, shall be held at least once a fortnight, either in port or at sea. An entry shall be made in the log book in respect of each drill, or of the reasons why they could not be held.

Different groups of boats shall be used in turn at each successive boat drill. The drills and inspections shall be so arranged that the crew thoroughly understand and are practised in the duties they have to perform, and that all the boats and pontoon-rafts on the ship with the gear appertaining to them are always ready for immediate use.

SAFETY CERTIFICATES.

Article LII.

Standard Safety Certificate.

(Official Seal) (Country)

SAFETY CERTIFICATE.

Issued under the provisions of the

INTERNATIONAL CONVENTION FOR SAFETY OF LIFE AT SEA.

Signed at London, 20th January, 1914.

Name of Vessel.	Signal Letters. International Code.	Port of Registry.	Gross Tonnage

(Name)

I, the undersigned certify:

I. that the above mentioned vessel has been duly surveyed in accordance with the provisions of the International Convention referred to above;

II. that the survey showed that the vessel complied with the requirements of the said Convention as regards:

(1) the hull, watertight subdivision, main and auxiliary boilers and machinery:

Convention, Art. 17, and annexed Regulations, Art. X.	(To be filled up only on the request of the owner.)	
Lengths.	Metres.	Equivalent in feet to.
(1) of the vessel for which this certificate is issued		
(2) of the standard vessel (Column C of the Table in Art. VIII of the Regulations) whose factor of sub-division has been employed in the case of the vessel for which this certificate is issued		

(2) the boats and life-saving appliances:

..... boats capable of accommodating ..... persons.

..... rafts " " ..... "

..... life-buoys.

..... life-jackets.

(3) Radiotelegraphy installation:—

	Class and number required by Articles 33 and 34 of the said Convention.	Actual class and numbers.
Class of Ship:		
Number of Operators of the 1st Class		
" " " 2nd "		
Certified Watchers		

III. That in all other respects the vessel complies with the requirements of the said Convention, so far as those requirements apply.

This certificate is issued under the authority of the Government. It will remain in force until

The undersigned declares that he is duly authorised by the said Government to issue this certificate.

(Signature)

Issued at the day of

FINAL PROTOCOL.

The undersigned Plenipotentiaries at the moment of signing the Convention for the safety of human life at sea, concluded under this date, have agreed as follows:—

I.

The voyages referred to in Article 2 of this Convention are those made from a port of a Colony, Dominion or Protectorate, where the Convention is in force to a port outside of the said country and vice versa.

II.

A special extension of time for the ratification of the Convention has been granted to the Danish Government, namely: to the first day of April, 1915.

III.

This Convention does not apply to vessels registered in a Colony, Dominion or Protectorate where the Convention is not in force.

In witness whereof the Plenipotentiaries have drawn this final Protocol, which will have the same force and effect as if its provisions were embodied in the text itself of the Convention it refers to, and they have signed a copy of it to be deposited in the archives of the British Government, a copy of which will be given to each one of the respective parties.

Drawn up at London, January, 1914.

The Conference expresses the wish:

As to what concerns the safety of ships at sea:

1.

That recommendation be made to the Government of the United States and to the Directors of the Suez Canal Company, that every four hours they publish notices in Colon, Panama and Suez, giving the barometric pressure with the necessary corrections as to the temperature and the height above sea level;

2.

That the attention of the Governments which have adopted the regulations enacted to prevent collisions at sea, be called to the necessity of revising the same, especially in reference to:—

1. Lights of sailing vessels.
2. Signals for indicating direction of vessel in fog.
3. Regulations for men-of-war without lights.
4. Navigation of vessels in neighbourhood of formation of men-of-war.
5. Rules relating to submarine vessels.
6. The adaptation of lights and fog signals to the size and the speed of modern ships.

3.

That the Governments interested in this matter continue to see that the power of lights and fog signals used on board ships, comply fully with the requirements of the International regulations to prevent collisions at sea.

4.

That in view of the various practices followed, and opinions held in the different countries in respect to the words of command used at the wheel, a uniform system of command be devised concurrently with the modifications of the rules laid down to avoid collisions at sea.

5.

That in those latitudes where thick weather is common, all the lightships anchored at important points off the coasts be provided with submarine bells.

6.

That any large vessel referred to in Article 2 of this Convention, be provided with search-lights for life-saving or any other emergency.

7.

That no binoculars be given to the lookout men.

8.

That the usual tests made to ascertain if the officers and lookout men have sharp sight and are in possession of the faculty of distinguishing colours, be generalized.

9.

That the question of making the port and tide signals more uniform be taken into consideration by the different Governments.

10.

That the Governments of the High Contracting Parties consider the advisability of approaching the shipping companies and the ship owners, in view of preventing their vessels, in crossing the northern parts of the Atlantic Ocean, from passing over the Newfoundland Banks, when fishing operations are most active.

11.

That the International services referred to in Articles 6 and 7 of this Convention, be, if possible, established in proper time to be useful during the season 1914 and 1915.

12.

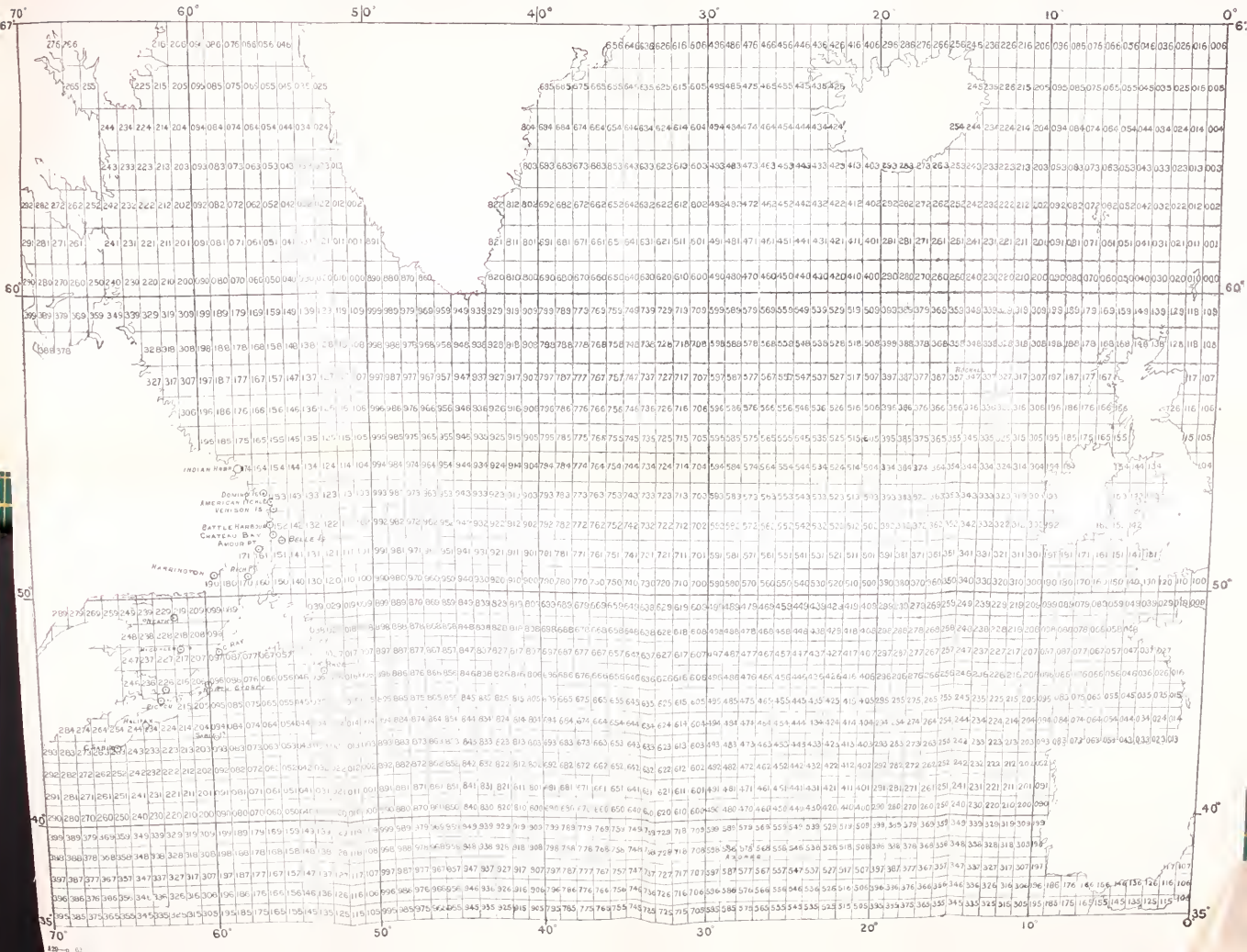
That the International Conference re *free-board*, which the British Government intends to call as soon as the preparatory studies will be complete, may at the same time, deal, if possible, with the deck loads of lumber or timber.

WIRELESS METEOROLOGICAL INFORMATION

The classification of squares corresponding to 1 degree indicate the position of the ship at the moment of observation.

RENSEIGNEMENTS MÉTÉOROLOGIQUE PAR TÉLÉGRAPHIE SANS FIL.

Classification des carrés correspondants à 1 degrué por indiquer la position du navire à l'instant de l'observation.



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As to what concerns Radiotelegraphy.

13.

That the Governments of the Contracting Parties take the necessary steps with the International Meteorological Commission to have it consider the question of increasing the number of stations capable of sending meteorological notices to vessels at sea, and of locating these stations in the most suitable places.

14.

That in compliance with the wishes of the International Conference relating to standard time, held at Paris in 1912:—

1. A meteorological service of radiotelegraphy be organized according to the provisions of Article 45 of the Regulation annexed to the London Convention on radiotelegraphy.
2. Foreign-going steamers and sailing ships be provided with apparatus enabling them to receive horary and meteorological signals.

15.

That the attention of the Governments of the Contracting States be called to the advantage that would result from their efforts to reduce the loss of time referred to in Article 38 of this Convention, regarding the installation of radiotelegraphic apparatus and the recruiting of operators for vessels of the first and second classes, as well as those referred to in the same Article for the installation of the said apparatus, the recruiting of operators and the appointment of a permanent man to listen to radiotelegraphic calls on board each vessel of the second and third classes.

As to what concerns Life-saving Apparatus.

16.

That the attention of each one of the Governments of the Contracting States be called to the advantage that would accrue from insuring as soon as possible the application of the provisions of this Convention, concerning the life-boat drills and fire drills, as well as the means to prevent, discover and distinguish fires on board ships.

In witness whereof the Plenipotentiaries have decided that the wishes here above expressed be annexed to the final Protocol, in order that they may be properly considered.

REPORT

OF

THE COMMISSION

TO INVESTIGATE THE MATTER OF THE

TRENT VALLEY CANAL

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA
PRINTED BY J. DE L. TACHÉ, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1914

[No. 190—1914]

Honourable Frank Cochrane,
Minister of Railways and Canals,
Ottawa, Ont.

Uuder authority of the Commission issued to me in that behalf, I proceeded to investigate the general administration of the Trent Valley Canal and the conduct of the employees and now beg to report as follows:—

Alexander J. Grant is styled Superintending Engineer and has under his jurisdiction all new construction work on the Canal.

Joseph H. McClellan is known as Superintendent and is in charge of the maintenance of the Canal.

I found it convenient to deal with the two branches separately and first proceeded to investigate the complaints referred to me in connection with Mr. McClellan's branch.

It is charged that grave irregularities occurred during the season of 1912 in connection with the purchase of certain explosives for use on the Canal.

For some years previous to 1912 Superintendent McClellan had purchased the explosives he required from the Kingan Hardware Company of Peterboro. In 1912 he shifted his patronage to Daniel Cinnamon, a hardware merchant of Lindsay. The particular explosive in question here, is known as 'Blasters Friend' and is manufactured by Dominion Explosives, Limited. This is put up in sticks or cartridges of different strengths, 1¼ and 1½ inches thick and 8 and 12 inches in length. A case of the eight inch sticks weights fifty pounds, which from the evidence appears to be the usual weight of a box of explosives. The same sized case of twelve inch goods seems to average only about 35 to 37 pounds.

Robert G. Kingan, the President and Manager of the Kingan Hardware Company, who seems to be a very close friend of McClellan's, persuaded the latter to use a special make of Blasters Friend, known as 'Submarine Special', which is put up in sizes 1½ x 12.

During 1912 three purchases were made as follows:—

May, 1912	1 ton
July, 1912	2 tons
September, 1912	1 ton

In the May shipment only forty cases went forward, the balance of the ton being retained in Kingan's magazine at Peterboro.

In the July order 112 cases should have been delivered, but only eighty cases were sent the Department. The remaining thirty two cases were taken to the Hardware Company's magazine.

All these explosives were for use at Lindsay and were checked on arriving there by Robert Hamilton, the foreman who had charge of the storehouse. Hamilton had weighed some sticks from a box of the May shipment and by counting the sticks had satisfied himself that there was a shortage in the order. He reported this to Overseer Samuel Clegg who was his superior officer, but the latter apparently did nothing about it.

When the eighty cases reached him on August 5, he weighed some of the boxes and checked up the weights and found a shortage of upwards of one thousand pounds. He reported this to Overseer Clegg and to Cinnamon and the following Saturday, August 10, told Accountant Bartlett about it.

The result of this discovery was that the Kingan Hardware Company delivered up forty two cases more to cover the ten cases short in May and thirty two cases short in July. All dealings with the Kingan people were conducted in a remarkable manner and are shrouded in a most suspicious atmosphere.

Kingan accounts for the shortage in both lots by saying he believed there was fifty pounds in each case. His evidence is that every time anything was added to or taken from the stock in the magazine it is noted in the magazine stock book, so that the stock book constantly shows a complete inventory of all explosives on hand. I file with this report this stock book marked exhibit 20. The entry of May 6th, 1912, shows that he had just put in stock fifty cases (presumably a ton) of special submarine. He knew that was all he had purchased. He purchased it purposely to sell to the Canal office because he says they were his only customers for it. Notwithstanding this, when a ton is ordered he ships out only forty cases and the ten cases improperly retained appear in his book at each stock taking thereafter.

Moreover, when the forty two cases are turned over to the Canal authorities the stock book shows that Kingan did not follow his rule of taking stock of the balance on that date, but, simply crosses out the entry of forty two cases where it appears under date of August 8th. He gave no reason for adopting this unusual method. The only reason I can conceive of is a desire to conceal the date of delivery.

Kingan secured an order from McClellan in the latter part of July for two tons of Submarine Special. It was shipped from the factory at Sand Point on July 29th as a part of a car lot. On August 1st Kingan wrote Cinnamon enclosing invoice, dated July 30 for 4,018 pounds and requested Cinnamon to bill the Department at once, dating his invoice 30th July and he intimates that an arrangement had been made to have the account certified and put through in the office at Peterboro. The bill dated July 30 is certified by Hamilton and Clegg and by McClellan, and sent to Ottawa by the latter with his monthly return. As a fact the goods were not shipped from Peterboro until August 2nd and were received by Hamilton on August 5th.

When the car of explosives reached Peterboro, Kingan gave his man orders to unload everything but eighty cases of Special Submarine which were to go to Lindsay and that was done. Thirty two cases belonging to the two ton lot ordered by McClellan were put into Kingan's magazine and remained there until August 28, when as a result of Hamilton's report of the shortage, McClellan spoke to Kingan and the latter turned these thirty-two cases along with the ten cases short in May over to Farein the Department storeman, and the Government subsequently paid seventeen dollars ($17.00) to have it hauled to Lindsay where the vendor should have delivered it.

A cheque for 4,018 pounds, the full amount of the purchase, was delivered Cinnamon, but, at the instance of Hamilton and Bartlett he refused to pay Kingan until the matter of shortage was straightened out. Cinnamon was absent from home for a time but on his return he took the matter up with Kingan. On August 26th the latter wrote Cinnamon stating that the shortage on the order was in the Government storehouse. This statement he knew to be untrue as it was only turned over to Farein on August 28th. He further states in that letter that the officials at Peterboro knew all about the storage before they certified to the invoice for the full amount. Despite this assurance Cinnamon refused to pay until he knew the proper quantity had been delivered and my finding is that it was only on account of this refusal that the balance of the explosive was delivered. McClellan writes Cinnamon under date of 29th August advising him that "the balance of Blasters Friend was received here and placed in our magazine." The letter is purposely worded to give the impression that the shortage had been made good immediately it was discovered. Kingan's letter of 30th August to Cinnamon stating that the departmental officials purposely retained the balance of the order in Peterboro is contradicted by his own evidence under oath and is undoubtedly false. It was obviously written with the purpose of allaying suspicion against himself and heading off any investigation that might be serious in its consequences to him. McClellan's statement under oath that a part of the explosive had been taken off at Peterboro to be used at Balsover is in the same category. There was no work being done at Balsover and none in contemplation.

On September 13, Cinnamon called upon the Superintendent and solicited a further order for Blasters Friend. McClellan refused him the order upon the ground that he didn't need any more. My conclusion is that at this very time he had an understanding with Kingan to take another ton which was afterwards delivered and billed through Cinnamon.

From a careful perusal of the correspondence filed herewith, the evidence taken under oath and the demeanor of the witnesses, I am forced to the conclusion that there was collusion between McClellan and Kingan. I am convinced that the explosive withheld by Kingan in May and in July was purposely retained. I am satisfied that if McClellan was not actively a party to it he at least knew of it and acquiesced in it. There can be no question but that an attempt was made to defraud the Government which would have succeeded except for the discovery made by Hamilton.

One is at a loss to understand why the Department should pay such a high price for explosives. Kingan buys it for nineteen cents F. O. B. at the mill. The freight rate is eighty-eight cents. He sells to Cinnamon for twenty-two cents and he in turn charges the Department twenty-seven cents. Either some ulterior motive or gross incompetency is responsible for such business methods.

Moreover, Cinnamon avers the goods were ordered and sent forward as a rule without his knowledge. His part in the transaction merely consisted of making out an invoice; adding five cents per pound to Kingan's price and taking this rake off as a profit for himself.

When undertaking to widen my field of enquiry into the general affairs of the maintenance department, I found on every hand insurmountable difficulties due to lack of complete records and confusion of those in existence. Until the present accountant, Mr. E. H. Bartlett took charge, there was absolutely no office system in existence; practically no pretense made of scrutinizing accounts, time slips, or pay sheets; no proper cash account and a woeful lack of records of any kind in connection with the business of the office.

This chaotic condition rendered it impossible to make anything like a full and complete examination of the affairs of the department.

This report sets forth a comparatively few of the irregularities and fraudulent practices in vogue in the office under Superintendent McClellan's supervision. He has not only practiced deception and dishonesty himself, but, has condoned it and winked at others and has proven himself hopelessly incompetent for the position he holds.

At the outset of the enquiry he expresses surprise when I point out to him that W. F. Nelson, who conducts a typewriting office in Peterboro, has been carried on the pay roll as a laborer and he says that it is an exceptional case and he knew of no others.

As the enquiry proceeds and these deceptions are unearthed and it is shown that bankers, lawyers, doctors, dentists, undertakers, barbers, merchants and almost every class of business and profession is represented on his pay sheets in a similar way, he confessed to such methods being an ordinary practice in the office over which he nominally presides. So far as superintending the Canal and safeguarding the public interests is concerned it is amply proven that there has been no serious attempt to do so. McClellan seems to have engaged himself largely with matters of political patronage and pleasure seeking jaunts at the public expense, and the bills for liquor and other refreshments and meals on the boat eloquently testify to his popularity as an entertainer. The evidence shows that these entertainments have ceased since the fall of 1911. The last bill for liquors and cigars to regale the guests of the Superintendent aboard the Bessie Butler is paid in October, 1911. The confectioners and grocers accounts have ceased since that date. The carnival of corrupt padding of pay-lists came to an end. But so far as control and management is concerned there is no improvement and cannot be under the present incumbent.

Mr. E. H. Bartlett, the present accountant, has done a great deal to systematise the business of the office during the short time he has been there. He has inaugurated many reforms and evidently has a high sense of his responsibility as an officer of the department, and, had he more latitude could do much more to improve the efficiency of the work of the office.

It is impossible in this report to give a resume of all the eight hundred pages of evidence. The following, however, are a few cases of the deception continually practiced upon the Government and these are charateristic of the business methods followed and the reckless disregard of public interests displayed by the officials of this Department, and, particularly by Overseer Gordon and Accountant Clarry, former officials of the Department, and Superintendent McClellan and Overseer Clegg.

W. Burgoyne who is a grocer at Fenelon Falls had his accounts for goods supplied the cookeries paid by being put on the time sheet as a laborer.

B. Young, a grocer at Young's Point appears as a laborer on the time sheet for the amount of his grocery bill.

D. McKercher, a veterinary surgeon and liveryman of Peterboro figures on the pay sheet several times as a laborer.

A. B. Spillman drew a number of cheques as a laborer for work in and about Peterboro. Mr. Spillman is a hotel keeper at Hastings and never did a day's work on the canal. He was put on the pay roll to secure payment of board bills.

A. G. Lawless, the proprietor of hotel at Lakefield and Bobcaygeon, received cheques in a similar way as a laborer to meet his accounts for board against the Department.

W. W. Darcy, a Burleigh hotelkeeper figures on the pay roll for a team and teamster to meet the amount of his board bill.

Hector Campbell, a hotelman of Kirkfield had a bill paid in a similar way.

Mr. Blade, a florist of Peterboro, furnished flowers for decorative purposes about the locks. He furnished a wreath for the funeral of a deceased employee, and he furnished also a rather expensive bouquet presented to the Superintendent's daughter at the christening of the Bessie Butler. To pay for these flowers Mr. Blade is put on the pay roll as a laborer.

W. H. Hamilton, a Peterboro grocer, had an account which was paid by putting him down as a laborer on Gull River.

T. Lane, the Superintendent, bought some pillows for one of the boats from Mr. T. Lane, a furniture dealer of Peterboro in 1910. These were paid for by putting Mr. Lane down on the pay roll as a laborer.

C. R. Nixon, boarded Mr. Charles Calcutt, the captain of a Government tug during part of 1910. The accounts are sent in to the Department and Mr. Nixon is put down as a laborer on the pay roll for sufficient time to cover the amount of the account.

A. Gibson, a jeweller in Peterboro, figures as a laborer. The Superintendent says that this was to pay for badges for the lockmen, alarm clocks on the boats and such things as that.

William F. Nelson, who styles himself as a broker and runs a typewriting office in Peterboro, figures almost monthly on the pay roll for years back as a laborer. He admits never having worked as a laborer. The cheques received by him were really to pay for typewriter supplies and typewriting in connection with an illustrated booklet on the subject of the canal published by Clarry, the former accountant.

E. A. Fitzgerald, a coal merchant of Peterboro, gets a cheque for team work in June, 1911. This was really to pay an account for oil and paint and included no labor.

Geoffrey O'Brien, who runs a grocery and fruit store in Peterboro for the past five or six years says he has been selling supplies to the 'Trent Valley Canal ordered by Overseer Gordon, Superintendent McClellan or Farein, the storekeeper. Most of

the goods went to the Bessie Butler to supply parties going up on her. O'Brien's account runs from fifteen to fifty dollars a month. Orders given by Farein were upon McClellan's instructions.

G. N. GRAHAM, proprietor of the Oriental Hotel, Peterboro, according to the pay sheet for October, 1907, is paid $9.50 for six days labor.

This was to pay for meals at the hotel.

W. H. ROBINSON, the proprietor of *The Times* newspaper, Peterboro, had an account of $3.60 in March, 1909. He is put on the pay sheet as a laborer and his account paid in that way.

E. SINGER. A pay sheet for August, 1910, shows E. Singer, laborer, 17 days at $1.50, $25.60.

Singer runs a second hand store in Peterboro and never worked on the Canal. The entry is put through to pay sundry small accounts,—$2.50 to Gus Hay, an employee in Hall's Law Office; $3.00 to John Gibson, an occasional canal employee; $2.00 to Superintendent McClellan and the balance for parcels.

D. DENHAM. The pay sheet for July, 1911, shows D. Denham, laborer, 6⅔ days, $10.00.

This young man was a student at Cornell University. In taking his summer holidays up the Canal he took some photographs and the Superintendent agreed to pay him ten dollars for some of them. It was paid under the guise of labor.

VINCENT EASTWOOD, manager of the Royal Bank at Peterboro, appears on the pay roll as a laborer at $1.50 a day. There is no explanation forthcoming for this.

F. SANDY got a Government cheque for $28.00 for alleged services as a carpenter in August, 1908.

Mr. Sandy is the Grand Trunk Station Agent at Peterboro and the account of $28.00 was for a special train to Fenelon Falls to a meeting that was held there on August 22, by the Hon. Geo. P. Graham.

A. HOLLINGSHEAD. Nov., 1907, pay sheet A. Hollingshead is paid for 15 days labor at $1.50 . . . . . $22.50

Mr. Hollingshead was Manager of The Bank of Ottawa at Peterboro at that time and of course was not an employee of the Government.

OZIAS LAPLANTE, a lawyer of Peterboro, figures a number of times on the pay sheet as a laborer.

H. S. MCDONALD is a druggist. He apparently sold hair brushes and combs to the value of $4.00 for use on the Bessie Butler. His account was paid by putting him down as a laborer on the pay sheet.

L. DEYMAN, a furniture dealer, got a cheque for a day's labor in July, 1909, at $1.75 to pay for a feather pillow.

S. OKE is a fruit merchant and grocer. He supplied goods to the Bessie Butler on occasions and was put on the pay sheet to cover his account. For instance in July, 1909, he is paid for a team and teamster for three and a half days at $3.50 making a total of $12.25.

J. H. STAUNTON appears on the pay sheet as a laborer in 1909 and 1910. He is a photographer at Fenelon Falls and never worked on the Canal.

HARRY LONG who used to keep a confectionery store in Peterboro and supplied sandwiches and other refreshments for some excursion parties up the canal, instead of having his account sent in the regular way is put on the pay sheet as working at the removal of stumps at Kirkfield and is paid as a laborer.

H. GAINEY was paid for work as a laborer on a number of occasions during the year 1907. Mr. Gainey is a barber in Peterboro and never worked in the Government service.

W. J. O'BRIEN, a grocer of Peterboro, appears as a laborer.

M. Hoover is a cabinet maker and picture framer in Peterboro. Throughout the years 1908, 1909, 1910 and 1911 he has been paid a considerable sum of money as a laborer on the canal works. This was to pay accounts for picture framing, etc.

F. W. Doan. In October, 1907, thirty nine dollars ($39.00) rental due The Bell Telephone Company for telephone at Superintendent McClellan's residence was paid by cheque to F. W. Doan an employee of the Bell Telephone Company and charged against repairs to booms, slides and dams. A similar account was paid in the same way in October, 1907, and again in June, 1908. There is no explanation of this. If, as McClellan says, the Government was to pay for a telephone in his house one can conceive of no reason for putting the accounts through in this way.

R. M. Roy. Charged against improving and clearing drowned lands on Balsam Lake in November, 1908, is one dollar paid to R. M. Roy, a photographer of Peterboro for photographs. In December there is a similar item of two dollars. In fact, Mr. Roy appears frequently for several years on the pay roll. In 1909, Mr. Roy was paid $15.65 as a laborer which was really for photographs.

A. Carr is undoubtedly an assumed named for some one who drew pay regularly as a laborer during 1906, 1907, 1908 and 1909. After exhaustive inquiry I was unable to find any one of that name who had ever been in Peterboro. The Superintendent himself admitted that he could not see where the Government ever got value for some three hundred dollars paid to A. Carr in this way. It is certainly a most glaring piece of fraud practised upon the Government.

The Peterboro Examiner appears to have had frequent accounts put through as labor in the name of some of the Company's employees.

In Jan., 1907, J. Clark is paid for 6 days work as a laborer at $1.50	$ 9 00
In March, 1907, 7 days as laborer at Gull River at $1.50	10 50
In May, 1907, J. Clark, 6 days at $1.75, repair booms, slides and dams	10 50
In June, 1907, 7 days at $1.50	10 50
In August, 1908, J. Clark, 10 days, laborer at $1.75	17 50
In September, 1908, J. Clark, laborer, 10 days at $1.75	17 50

Clark was an employee of the Examiner Office and never did any work on the Canal. The Superintendent swears that Clark did not labor for this money, nor, did the Department owe these accounts to the Examiner.

Pat. Hogan. In the years 1905 and 1906 Pat. Hogan was paid as a laborer on several occasions. Hogan is a hotelkeeper in Peterboro and never worked on the Canal. Presumably this was to pay board bills, but there is no record to show this.

Mrs. Kearney. It is shown in evidence that McClellan built a verandah for Mrs. Kearney and the Government paid and boarded the men while doing it. He says that she still owes for this work, but, there is no record in the office and he admits that she has never been billed with any account. (Page 168).

George Wilson (Page 670) who is called a walking boss, does work that the Superintendent says is a part of Overseer Clegg's duties, and should be done by Clegg himself. He draws $75.00 a month although McClellan says he is unnecessary and his services should be dispensed with.

Jackson's Meal Account, July, 1908. Pay sheet shows there were 146½ days at three meals a day, making 439 meals Jackson gave for the month of July at 14 cents, making $61.46 due him for that month. He was paid $120.54, although McClellan certified for this, he admits that he has no explanation. (Page 469 and 470).

In the month of May Jackson served 643 meals at 14 cents which would amount to $90.02. He was paid for 929 meals totalling $130.06. There is no explanation for this. These accounts with many similar ones were made out in the Superintendent's office and certified by him and sent to Ottawa for payment.

William Hewitt is caretaker of some small dams at Hawke Lake. He is paid $1.75 a day and board and the free use of a house and fuel owned by the Department at Hawke Lake. He has been permitted to buy provisions and furnish his house. For June, 1910, his grocery bill at one store was $10.26; July $34.40; August $73.54; September and October $27.02. It is obvious that no attempt was made to control this expenditure and from the nature of the goods purchased. Mr. Hewitt lived both luxuriously and extravagantly. It is costing the Government at least twelve hundred dollars a year to maintain Mr. Hewitt at a job that should not cost half that. As a result of the disclosures elicited in my investigation McClellan cancelled this improvident arrangement with Hewitt and engaged him at $60.00 per month, and even this rate of wages is in my view excessive.

B. A. Rose, a Grand Trunk Ticket Agent at Peterboro, appears constantly throughout the pay rolls for several years until 1911 as a laborer. In many cases this is for tickets purchased by employees outside of the regular monthly tickets given for proper transportation on Government business. In some cases Mr. Rose denies receipt of the money put through in his name. It was impossible to trace the parties who got either these tickets or the money.

Patrick J. Kenny, who conducts a liquor store in Peterboro, is almost constantly on the pay roll as a carpenter from December, 1908, to the fall of 1911. I have filed with this report a verified copy of Kenny's account showing that he was paid nearly six hundred dollars ($600) for liquors and cigars in about three years. As far as I can trace it, practically all of these refreshments were to equip the Bessie Butler for numerous pleasure parties, some of which were conducted under the guise of official inspections. McClellan denies that any of these goods went to his house, although Kenny says that a substantial order was delivered there for Xmas 1908. The evidence shows that some twenty-five or thirty dollars worth of liquors was purchased and paid for each winter when the boats were out of commission. I was unable to trace the delivery of the winter supply. Kenny testified that all these goods were ordered by McClellan and Farein. The latter says that he ordered only upon instructions from the Superintenent and McClellan acknowledges this and admits his full responsibility in the matter.

J. Young. Time sheet September, 1905, shows J. Young, laborer 26 days at $1.50 . . . . . $39.00
Time sheet November, 1905, shows J. Young, laborer 24 days work at $1.50 . . 36.00

The evidence shows that J. Young was not a laborer and never worked on the Canal. He is a steamboat man at Young's Point. Superintendent McClellan engaged the boat for an excursion to Fenelon Falls at $125.00 and says that it was for the use of departmental officials and their friends. Young says the party was largely made up of Peterboro people.

If there was nothing to conceal one cannot understand why Young's account should not be paid regularly as an account instead of his name being falsely entered on the pay roll as a laborer.

In December, 1908, fire did some small amount of damage to the kitchen on the Bessie Butler. McClellan reported to the Department that it would take some two or three hundred dollars to put her in repair. Apparently without authority from anybody, except that he says he spoke to Mr. Butler about it, he expended upwards of $2,200 in rebuilding the boat on an extravagant scale entirely unnecessary and unwarranted.

Robert Pinett has been employed as a cook on one of the Government boats for a number of years. In 1909 he was paid a monthly salary and twenty cents a meal for the crew and workmen, and thirty five cents a meal for officials' guests, etc. He kept track of the number of meals and sent a statement to the office monthly. The account for meals run into very large figures. There had been a great many excursion parties up the canal. When the season closed there was seventy dollars due

Pinett, much of which was for McClellan's family, relatives and guests. Pinett worked for the Department until the middle of January, 1911, but was idle from that until the 10th of March. He was kept on the pay roll, however, at $1.50 per day throughout January until the seventy dollars was paid. In March, 1911, McClellan hired Pinett at sixty dollars a month to cook for a gang of men at Lakefield. Pinett was directed to keep track of the number of meals and send in a statement to the office. He did this and this statement was sent to Ottawa and a cheque for the amount at fifteen cents a meal was forwarded to the Peterboro Office in Pinett's name. Pinett was required to endorse this and the Peterboro Office paid the accounts and somebody, not entitled to it, retained the balance. For instance, in April, 1911, the account for meals sent to Ottawa and paid was $156.00. Out of this Pinett was paid fifteen dollars to make up the difference between his regular salary of $45.00 and the amount promised him by McClellan. The account for supplies was $101.00 so that there was forty dollars rake off in that month's business for somebody. In other words some one stole forty dollars from the Government.

This arrangment with Pinett was made by the Superintendent himself and he must have been cognizant of the facts.

In the year 1912 a small boat called the *Manita* was rented by McClellan from William Robinson for use on the canal at $8.00 a day; McClellan agreeing to do whatever repairs were necessary for this purpose. Rent was paid for her from 26th of May to the 12th of June while she was being repaired. Rent was paid for her also for six days while she was being laid up in the fall. The spring repairs cost $259.12. She worked twenty-six days for the Engineer's Department for which they paid McClellan's Department $208.00. She worked for McClellan's Department twenty-seven days during that season. The balance of the time she worked for Sir William Mackenzie who paid Robinson $8.00 a day for her. McClellan sent the whole outfit on to Mackenzie's work and Mackenzie paid rental, wages and maintenance while actually on the work. McClellan's Department paid for delivering her at Mackenzie's work and paid for her while returning from the work. Robinson complained that the boat had been badly used and seriously damaged and McClellan in the spring of 1913 spent $331.00 on repairs. The result of operations with this boat is that she cost in repairs 1912,—$259.00; 1913,—$331.00; rent,—$504.00; total, $1,094.00, received from the Engineers $208.00. The net cost of the boat to the Government was $886.00 for twenty-seven days work or about $33.00 a day. (Page 451.)

C. C. Huycke. The name of C. C. Huycke appears regularly on the pay roll in McClellan's office for the past seven or eight years at $25.00 a month as caretaker at Healey's Dam. He lives two or three miles out of Hastings and eight miles from the dam he is supposed to have had charge of. When required to do work at the dam it was necessary to telephone to Hastings and send a message with a liveryman out to his house. Then he drove the eight miles to fulfill his orders. The Government paid the telephone and the livery. In November, 1909, Deputy Minister Butler instructed McClellan that Mr. Grant would have control of the waters between Healey's Falls and Hastings during the construction work there. McClellan wrote Grant enclosing a copy of Butler's letter and told him that he had notified Huycke that instructions would be given him from the Engineer's Department thereafter. Mr. Grant did not even acknowledge McClellan's letter. He gives as his reason for ignoring the letter that he did not consider he was in any way under McClellan's direction. He admits that there is a bitter feeling between the two offices and went so far as to forbid his men having anything to do with Huycke. He knew that Huycke was a Government employee and must have known that he would continue to draw a salary for doing nothing. In my opinion his duty was to have written McClellan telling him that he did not require Huycke's services and the country would have been saved $300.00 a year. In his actions Grant appears to be actuated more by enmity towards McClellan and his own vanity than the safeguarding of the public funds. The result was that

Huycke remained on the Government pay roll and was paid through McClellan's office. Grant paid no attention to him; McClellan gave him no instructions. He has been drawing $300.00 a year for which he has done nothing but sent to Peterboro weekly reports of water levels taken from a stake placed in the water at the foot of his farm. His position is a sinecure and he should be discharged.

RENTALS.—While under examination in September 18th, McClellan admitted having in his possession $15.000 belonging to the Department which he had received by registered letter on April 25 previous from one Grylls as rent. Written demand was twice made upon Grylls while McClellan had the money.

On another occasion he admitted having received ten dollars from the Provincial Treasurer for the storage of a patrol boat. This never reached the public Treasury although the cheque is endorsed by McClellan. Nor are these the only instances of this kind as a perusal of the evidence will show.

There is a large amount of rentals for power and lands paid into the Superintendent's office each year. No attempt was ever made to keep a separate account of these. The Superintendent deposited everything to his private credit and chequed money out on his personal cheque. When public moneys were received by him instead of remitting direct to Ottawa he deposited the money to his own credit and had the use of it for months sometimes, before he remitted to the Receiver General. Examination of his various bank accounts shows that had it not been for the deposit of Government funds he would have had almost constant overdrafts and would have been unable to issue cheques against his own account. In other words he improperly diverted to his own use the public funds.

McClellan never had any official or office account but carried private accounts at different times with the Ontario Bank, the Bank of Montreal, the Royal Bank, the Bank of Ottawa and the Bank of Commerce. All these accounts appear to have been conducted on the same principle. (Page 427).

In 1910 his deposits in the Bank of Commerce amounted to $12,452.00. Had he deposited his whole salary, which he did not do, it would only account for $2,000.00 of this deposit. The balance of his deposit amounting to $10,452.00 is made up of at least $3,349.71 of Government funds and moneys received by him in connection with the winding up of some companies in which he and his son were interested. A large part of the amount he admits was money belonging to the Government.

W. H. DUNSFORD, manager of the Bank of Commerce (Page 472) says McClellan would not have been able to issue cheques against his own account if it had not been that he was depositing public funds to his own credit.

In the summer of 1910 McClellan sent a dredge to Lindsay to do work for John Ritchie & Company for which they paid to McClellan $550. This money was never paid to the Government and McClellan is unable to account for it. His statement is that he may have drawn the cash for it and left it with Clarry the accountant to hand over to one Davidson for the Liberal Campaign Fund. (Evidence page 393, 394, 469 and 470). He admits that large sums of money that should have been remitted to Ottawa were contributed to the Liberal Election Fund. In a short investigation in the hopelessly muddled account I was able to trace about $2,000 which he says went in that way made up as follows:—

Three cheques of $514.00, $480.00 and $482.00 respectively received for empty cement sacks, and a cheque of $550.00 received from John Ritchie for dredging. He says when he went on the canal he was told by Hon. J. R. Stratton that there should be an election fund of from five to seven thousand dollars a year from the canal office and that he proceeded on that basis.

GEORGE A. MOTHERSILL. Auditing Engineer, and Superintendent McClellan appear to be very close friends and considerable correspondence concerning official matters but marked "private" have passed between them. Some of these are in my view highly improper, even if they are not to be characterized more seriously. For

instance a pay sheet reaches Mothersill for audit in December, 1909. Amongst the accounts is one from Wm. Jackson, a cook, for 444 meals at fifteen cents, making a total of $66.16 to be charged to a wharf at Juniper Island. Mothersill writes a "private" letter to McClellan returning the account, pointing out that the Juniqer Island appropriation "will not stand" that amount and tells him there is only a balance of $30.59 in that account "or about 219 meals". A new account dated the same is immediately returned for 219 meals and was put through.

Again in October 18th, 1912, Mothersill writes privately to McClellan returning some irregular voucher and warns him that there may be persons on the lookout for any such irregularity. To my mind these are most remarkable letters to go from an auditor to the man whose accounts he audits. They throw some light on the reprehensible departmental methods that have obtained.

Sam. Clegg. An overseer on McClellan's staff signs time slips and pay sheets including the name of persons who have never worked on the Canal, but some of whom have accounts of various kinds. He admits that this was a very general practice and that it was entirely wrong to do it.

Mrs. Burrett is the wife of the Lockmaster at number three lock. She was paid several sums as a laborer on the canal during the years 1905 and 1906. The Superintendent thinks some of these payments were to pay accounts for boarding canal employees when working in the vicinity during the summer. There are a number of payments made to her as a laborer during the winter. McClellan suggests that this was probably to cover work done by her husband who is a lockmaster, so that he could be paid not only his regular salary as lockmaster, but draw double pay in this way. I find this same Mrs. Burrett on the March, 1910, pay roll in the engineer's department.

L. McFarland is a daughter of the Lockmaster at Lovesick. During the years 1906 and 1907 she was paid substantial sums as a laborer. Her time being certified to by her father Wm. McFarland the lockmaster at Lovesick.

After delving into the affairs of the maintenance department sufficiently to satisfy myself as to the necessity of a complete reorganization and the elimination of a number of the present staff, I visited the office of the Superintendent Engineer. The result of my enquiry there is as follows:—

George H. Giroux, of the Superintending Engineer's office is styled clerk of works. His duties, according to his own statement, consist of checking over accounts pertaining to the staff, looking after the letters coming through the office and taking care of office plans and making blue prints. There are some eight or nine branch offices along the canal each in charge of a district engineer and all under the Engineer's Department. Pay sheets are made up at each branch and certified by the engineer in charge and sent in once a month to Grant's office. Giroux takes these along with the Peterboro office pay roll and sends them to Ottawa and when the cheques come back he sees that they are sent out. This embodies all his duties as accountant. The plans for the different works are taken care of by him; he makes whatever blue prints are required. Information was given me that in August, 1912, Mr. Giroux had improperly charged to the Department some items of expense that were purely personal. On the 22nd August, 1912, he drove his family to Chamong Lake to a regatta. The livery was four dollars and he put it through and had it paid for by the Government. A few days afterwards he made a trip to Campbellford. As he puts it, it was purely a pleasure trip to see the work there and the expense of this trip was put through on Government account. Mr. Giroux says that the Superintending Engineer knew of these things and approved of them and Mr. Grant admits this. Of course, such charges, however trifling in amount, are entirely irregular and improper. Mr. Giroux admits that he made and sold during the past seven or eight years blue prints for every one who brought him plans and asked him to do such work. The paper used for the purpose belonged to the Government and they were made on Government machine and Giroux's time belonged to the Government. Mr. Grant knew of this and permitted it.

Albert James Raddon, who styles himself Cement Test Clerk and Photographer, has been in the employ of the Department since August, 1896. His duty is to make tests of the cement used on the works. He not only tests the cement for the Government, but made a business of testing cement for others. He admits having done this and says it was with Mr. Grant's permission he did it. In the years 1907, 1908 and 1909 he tested in the Government office with the Government apparatus, one hundred and sixteen cars for outside parties, for which he charged for his own use three and four dollars a car. Even as late as November last year he made tests for outside parties and was paid for them. That sort of thing is highly reprehensible and should not be permitted.

Robert Frank Raddon was a sort of handy man around the premises. He was originally taken on as a helper to his brother, A. J. Raddon, in the cement room. He says, and his brother corroborates him, and Mr. Grant admits, that he worked a great deal about Grant's house. In fact my conclusion from the evidence is that his duties about the office were very light; a good deal of his time was spent looking after Mr. Grant's private requirements. He was discharged by Grant as a result of a quarrel with Mrs. Grant and it has not been found necessary to replace him. This fact alone would lead one to the conclusion that he was retained largely for Mr. Grant's private service. Mr. Grant says that at the request of Hon. J. R. Stratton he found him a different position at Healey's Falls after dispensing with him at the Peterboro office.

James Andrew Hadcock has been in the employ of the Government under Mr. Grant since 1909. He says that he has not any regular engagement but is paid five dollars a day when working. His salary was fixed by Mr. Grant. In the summer of 1913 he was employed at dredge work until the 15th of November. From the 15th to the 24th he was idle. On the 24th he went to Trenton as inspector of lockgate construction. He was paid for the week he was idle on Mr. Grant's instructions. Hadcock acted as timekeeper on the dredge work. He made up his time book showing that all the men ceased work on November 15. He was totaled up and certified to by Mr. Cameron the engineer in charge of that work. Hadcock afterwards altered his time book to make it appear that he had worked that week, although as a matter of fact, he was not working. This alteration cost the Government thirty dollars ($30.00). Mr. Grant takes the responsibility for this and approves of it upon the ground that he has the right to give a man a few days when he sees fit.

Roger, Miller and Company, the contractors who are building the lock gates at Trenton, shut down their work on December 20. Hadcock says they were shut down for eight days during which time he was at his home in Peterboro.

Mr. J. B. Brophy, who is the engineer in charge of the division where Hadcock was working, had to certify to his time. In making out his December pay sheet he left Hadcock's time and salary blank as he had no instructions from Mr. Grant in the matter. When he brought his pay roll to head office Grant instructed him to give Hadcock full time. In January, 1913, Mr. Hadcock took a trip to Buffalo to buy a motorcycle for himself and was gone, accordingly to his own story, not less than three days. He signed his own time sheet certifying that he was on the works during that three days and was paid his regular wage. He says Mr. Grant knew of this and approved of it. Hadcock, according to his time book certified by himself, spent from November 14, 1912, to February 15, 1913, in all 81 days at five dollars a day, building three ordinary flat bottom punts worth, at his own estimate, thirty five or forty dollars a piece. These punts cost in labor four hundred and five dollars ($405) besides the material used. Hadcock says he did this under Grant's instructions and in fact Mr. Grant assumes full responsibility and says that he was simply finding something for Hadcock to do so that he would not leave Peterboro and would be available for the spring's work. Mr. Hadcock admits that every other winter he was idle for some months and still he has always been available at the opening of the season. And even during 1913 he was idle from February 15 until June according to his own statement.

Alexander Joseph Grant has been Superintending Engineer of the Trent Canal since the first of April, 1906.

Although not a civil engineer Mr. Grant lays claim to long experience in engineering work. One of his first works on the Trent was the designing and construction of the dam at Buckhorn which was built in 1907 and 1908 at a very large cost. In 1913 alterations to the amount of $4,229.00 were necessary to make the dam conform to the requirements for which it was originally constructed.

I discussed with Mr. Grant at considerable length the organization of his office and the staff. Although in my view there is a lamentable lack of system he appears to think it satisfactory.

Although there is a very large amount of valuable plant belonging to the Government in the hands of this Department there never has been any inventory of it made or maintained. There is a dredge, a couple of houseboats, gasoline boats, row boats, canoes, stoves and tents and all varied equipment, amounting to a very large sum in value, necessary to carry on the work along the whole length of the Canal. No record of this is kept and nobody seems to be responsible for its care. Some few articles are kept in a storehouse. The storehouse man says that he has no instructions to keep track of things. When anything is brought to him he puts it in the storehouse; when any one asks for anything he hands it out. This seems to me to be a serious defect in management and must inevitably result in loss and waste.

There is no office organization of any kind in existence; absolutely no books are kept and there is no attempt at accounting of any kind. The only records in existence are copies of the accounts and pay sheets that are sent to Ottawa. One would expect to be able to turn to some book or record and find a summary of the cost of any particular work, or, the year's accounts with any particular firm. To get such information at present the individual accounts and pay sheets have to be gone over and the facts gleaned from them.

Mr. Grant should have closer supervision over the office and his staff and the reprehensible practices permitted should never have been allowed. He is aware and has permitted Raddon to make a profit from his position by testing cement for outside parties. He has been aware and approved of Giroux making a business of furnishing blue prints to the public for his private gain. He kept no man about his own residence, but made use of the services of Robert Frank Raddon, an employee of the Department, as a man of all work about his own premises. He certified to expenditures made by Giroux on his private account and had them paid by the Department. He has certified to Hadcock's time on a number of occasions when Hadcock was not working and he takes the ground that he has the right to do that.

It is little short of scandalous that without any justification whatever an employee should be retained at five dollars a day for eighty one days building three rough board punts which, as a matter of common knowledge we all know, can be bought for from fifteen to twenty dollars each.

A large item of expense in connection with the engineer's office is livery account. This office expends in this way from four to five hundred dollars a year. My attention was directed from complaint I had received, to an investigation of the account of Jones' Bros. This account shows an expenditure as follows:—

1910	$171 25
1911	235 25
1912	152 50
1913	83 25

The substantial falling off in 1913 is due to the use of automobiles instead of horses.

This account is exclusively Mr. Grant's. The evidence shows, and Mr. Grant admits, that a considerable part of this expenditure was incurred by Mrs. Grant. He attempts to justify it in many cases by explaining if he were going away she had a

livery go for her an hour or two before the train and she drove about until train time and then drove him to the train. If he were coming home the livery came early for her and she used it until time to meet him at the train. He apparently does not regard seriously the fact that the extra driving by Mrs. Grant costs the country just the difference between a fifty cent hack which would take him to or from the train, and a charge of from two to five dollars according to the length of the time Mrs. Grant used the rig. Moreover, if it were only an occasional occurrence one might overlook it. But it has been the common practice and runs into a very substantial amount of money. But even this explanation does not apply to all the livery rigs made use of by Mrs. Grant. There are on his own statement a number of occasions when Mrs. Grant made use of the livery that was charged to and paid for by the Department when Mr. Grant was away from home entirely.

In the year 1911 the dredge *Holland* was purchased by the Department on the recommendation of the engineer at the cost of upwards of $16,000.00. She is a combination of orange peel and suction dredge. She originally belonged to a firm of contractors who were working on the construction of the Newmarket Canal. The contractors made default in their work and the dredge might have been confiscated by the Governement at that time. She was transferred by the owners to the Standard Bank from whom the Government purchased her. Mr. Grant informs me that the original purpose was to use her on the Holland River where the excavation consisted of loose earth and silt. She was brought to Peterboro and tied up on the bank of the canal where she still lies. Mr. Grant says that she was never made use of because the Newmarket canal was abandoned subsequently to the purchase. The evidence of every one whom I questioned upon the subject is that her machinery is a splendid type and in excellent condition.

In the storehouse in connection with the maintenance department there is almost a complete outfit of dredging machinery, bought some years ago with the alleged purpose of constructing a dredge.

Notwithstanding the fact that these two dredge outfits were available and could surely have been utilized, a new dredge called the *Auburn* was built by Mr. Grant in 1912. His original estimate was about $19,000.00 while the cost amounted up to $26,000.00. The engineers seem to have taken upon themselves to build this dredge without any appropriation being made therefor. The *Auburn* is what is known as a clam shell dredge and the material that she is best adapted to handle is much the same as the class of work for which the Holland was intended.

What strikes one as most remarkable is that the Government should have locked up not less than $25,000.00 or $30,000.00 in two dredge outfits and a third dredge is built without any attempt at utilizing any of the splendid machinery or parts already on hand. In other words the Government has invested from fifty to fifty-five thousand dollars in dredge plant and have but one operating dredge costing $26,000.00.

My observation together with the strongly expressed opinion of all the officials, convinces me that the system of administration of the affairs of the Trent Valley Canal is entirely wrong. There should be one supreme head in control of everything connected with the Canal. Under this central authority it might be well to maintain a construction department and a maintenance department, but the control of affairs should be vested in one official. Experience has amply demonstrated the failure and folly of the present system. With the offices divided, as they are to-day, with a separate official at the head of each branch, there is constant conflict of juridiction, overlapping of authority, frequent disputes and continuous friction. This has been productive of such marked enmity between the two offices that the official heads make no attempt to conceal their ill will towards each other. Such a condition, of course, is subversive of all discipline and inevitably militates against efficiency.

By putting the whole Canal service under one capable man (and if possible houseing the staff in one premises) a very substantial reduction of rentals could be made; the number of the staff could be largely reduced; much duplication of plant would be avoided and more economical, efficient and businesslike administration would result.

Appended to this report is the notes of evidence and the exhibits referred to therein.

All of which is respectfully submitted.

(Signed) G. HOWARD FERGUSON,
Commissioner.

Dated at Kemptville, Ont.,
February 18, 1914.

RETURN

[246]

To an Order of the House of Commons, dated March 2, 1914, giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of government:—

1. As to the method of appointment, whether by executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or otherwise.

3. As to a reappointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qualifications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or additional appointments in case of disagreement between the Upper and Lower Houses.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status and such Upper Chambers.

LOUIS CODERRE,
Secretary of State.

April 7, 1914.

4-5 GEORGE V., A. 1914

REPORTS FROM HIS MAJESTY'S REPRESENTATIVES ABROAD RESPECTING THE COMPOSITION AND FUNCTIONS OF THE SECOND OR UPPER CHAMBER IN FOREIGN STATES.

LIST OF PAPERS.

Circular addressed to His Majesty's Representatives at Berne, Brussels, Christiania, Copenhagen. Lisbon, Madrid, Paris, Rome, Darmstadt, Dresden, Stockholm, The Hague, Vienna, and Washington[1] . . . . . July 10, 1907

Replies to preceding circular.

Austria—
1. Sir E. Goschen to Sir Edward Grey . . . . . August 7, 1907
One Inclosure.

Bavaria and Wurtemberg—
2. Mr. Cartwright to Sir Edward Grey . . . . . August 30, 1907
One Inclosure.

Belgium—
3. Sir A. Hardinge to Sir Edward Grey . . . . . September 12, 1907
One Inclosure.

Denmark—
4. Sir A. Johnstone to Sir Edward Grey . . . . . October 17, 1907
One Inclosure.

France—
5. Sir F. Bertie to Sir Edward Grey . . . . . August 5, 1907
One Inclosure.

Hesse Darmstadt and Baden—
6. Mr. Harford to Sir Edward Grey . . . . . October 20, 1907
One Inclosure.

Hungary—
7. Consul-General Clarke to Sir E. Goschen . . . . . August 27, 1907
One Inclosure.

Italy—
8. Mr. des Graz to Sir Edward Grey . . . . . August 6, 1907
One Inclosure.

Netherlands—
9. Sir H. Howard to Sir Edward Grey . . . . . July 29, 1907
One Inclosure.

Norway—
10. Sir A. Herbert to Sir Edward Grey . . . . . July 31, 1907
One Inclosure.

Portugal—
11. Mr. Beaumont to Sir Edward Grey . . . . . August 9, 1907
One Inclosure.

Prussia—
12. Count de Salis to Sir Edward Grey . . . . . July 31, 1907
One Inclosure.

Saxony—
13. Mr. Findlay to Sir Edward Grey . . . . . August 21, 1907
One Inclosure.

Spain—
14. Sir M. de Bunsen to Sir Edward Grey . . . . . August 2, 1907
One Inclosure.

Sweden—
15. Sir R. Rodd to Sir Edward Grey . . . . . August 6, 1907
One Inclosure.

Switzerland—
16. Sir G. Bonham to Sir Edward Grey . . . . . July 20, 1907
One Inclosure.

United States—
17. Mr. Bryce to Sir Edward Grey . . . . . October 5, 1907
One Inclosure.

[1]Also to Berlin for information as to Prussia, and to Munich for Bavaria and Wurtemberg.

SESSIONAL PAPER No. 246

RETURN

To an Address of the Honourable the House of Commons, dated July 8, 1907, for "A *Copenhagen, Lisbon, Madrid, Paris, Rome, Darmstadt, Dresden, Stockholm, The* their functions."

Circular addressed to His Majesty's Representatives at Berne, Brussels, Christiania, Copenhagen, Lisbon, Madrid, Paris, Rome, Darmstadt, Dresden Stockholm, The Hague, Vienna, and Washington.[1]

FOREIGN OFFICE, July 10, 1907.

SIR,—I have to request that you will furnish me with a report, in a form suitable for presentation to Parliament, on the composition and functions of the Second or Upper Chamber in the country to which you are accredited.

Your report should also contain a short account of any constitutional disputes which may have arisen during the last ten years between the Upper and Lower Houses, and of the means by which these have been adjusted.

I am, etc.,

E. GREY.

REPLIES TO PRECEDING CIRCULAR.

AUSTRIA.

No. 1

Sir E. Goschen to Sir Edward Grey.—(Received August 12.)

VIENNA, August 7, 1907.

SIR,—With reference to your Circular despatch of the 10th ultimo, I have the honour to transmit herewith a memorandum which has been drawn up by Mr. Crackanthorpe upon the composition and functions of the Upper House of the Austrian Reichsrath.

I have, etc.,

W. E. GOSCHEN.

Inclosure in No. 1.

MEMORANDUM BY MR. CRACKANTHORPE ON THE UPPER CHAMBER OR "HERRENHAUS" OF THE AUSTRIAN REICHSRATH.

Composition.

The Upper House of the Austrian Reichsrath consists of from 248 to 268 members, their number varying according to the number of life members.

It is composed of:—

1. The Princes of the Imperial family who are of age.
2. A number of nobles possessing large landed property, in whose families the dignity is hereditary.
3. Ten archbishops and seven bishops.
4. A number of life members nominated by the Emperor who have distinguished themselves in politics, art, or science, or rendered any signal service to Church or State. A law passed in January, 1907, lays down that the number of life members shall not be less than 150 or exceed 170.

[1] Also to Berlin for information as to Prussia, and to Munich for Bavaria and Würtemberg.

Functions.

Government Bills and motions can be introduced in the Upper House, with the exception of Money Bills and the Recruiting Bill, which must originate in the Lower House. Government Bills have precedence of all other Orders of the Day, with the exception of motions which are recognized by the House as urgent. Every member of the Upper House has the right to introduce private motions, which must be presented to the President in writing, and signed by ten members, including the mover. Motions duly seconded are placed among the Orders of the Day for a first reading. All Bills are subjected to three readings. When a Bill is down for its first reading, the mover may open the debate and explain its general principles. Government Bills are referred to a committee after the first reading. When the Bill is read for the second time, the general debate is opened by the reporter of the committee. This is followed by a special debate, in which the different clauses of the measure are considered and voted upon. Amendments may be referred to the committee, and the debate can be suspended until a report has been received upon them. After the Bill has passed the second reading, the third reading is usually taken at the next sitting. A vote is then taken on the whole Bill without debate. If passed, it is then sent to the Lower House, and, if it passes the Lower House without amendment, it is forwarded for the Imperial sanction. If amended, it returns to the Upper House, and, if the two Houses are unable to agree, a joint committee is formed.

At the sitting of the Upper House, held on the 24th July last, the President, Prince Windischgraetz, made an important announcement as to the result of the discussions which had recently taken place between the Prime Minister, Baron von Beck, and himself, with a view to increasing the field of usefulness of the Upper House. From his statement, and from the speech afterwards made by Baron von Beck, it appears that an arrangement has been come to whereby a greater proportion of legislative measures than formerly will henceforward be initiated in the Upper House. Among such Bills indicated for early introduction are Bills relating to the reform of the Penal Code, the revision of the Civil Code, the Sanitation Regulations, and Lunacy System. It has also been arranged that the sittings of the Upper House shall be held as far as possible consecutively, at stated periods, instead of, as formerly, at irregular intervals. It is thereby intended to facilitate the attendance of a greater proportion of peers who do not wish to reside permanently in Vienna. Efforts will also be made to send up Bills from the Lower to the Upper House in good time, so that the deliberations of the latter Assembly may not be unduly hurried. By these means it is hoped to draw additional advantages from the ripe experience and technical knowledge possessed by many members of the House of Peers, and to give greater scope to their activity in furthering the interests of the country.

Conflicts between two Houses.

Legislation in the Austrian Parliament has been impeded by continued conflicts between the various racial parties, and practically no friction had arisen between the two Houses prior to the passing of the Electoral Reform Bill at the beginning of this year. The attitude of the Upper House towards this Bill threatened at one time to produce a complete deadlock. The Bill in its final stage had been referred to the Electoral Reform Committee of the Upper House. The result of its deliberations was that it threatened to delay and indeed to practically wreck the Bill by recommending that two clauses should be added to it, one providing for "*plural voting*," i.e., for the granting of two votes to every voter on his reaching the age of 35, and the other establishing the "*numerus clausus*" in the Upper House, i.e, providing that the number of life members should not be less than 150 nor more than 170. The object aimed at by the establishment of the "*numerus clausus*" was to prevent the Govern-

ment from allowing the number of life members of the Upper House to be reduced to a low point, and then creating a pliable majority through the appointment of a large number of new life peers, most of whom, as civil servants, would be subservient to the wishes of the Government. As the result, however, of pressure brought to bear by the Prime Minister on the leaders of the three parties in the Upper House, a compromise was arrived at whereby the plural voting clause was rejected in return for the assurance that the Lower Chamber should pass the measure known as the "*numerus clausus*," recommended by the Electoral Reform Committee. Thus the subsequent passing of the Bill in the Upper House was practically assured, in spite of the continued opposition of certain peers connected with the German Constitutional party.

It may be here mentioned that an interesting feature of the Universal Suffrage law is the creation of an option for members of the Herrenhaus to seek election to the Lower Chamber, their functions in the Upper House being, in case of election, temporarily suspended for the whole duration of their mandates as deputies. Under the system in force, membership of the Upper House is automatically revived on resignation of his seat in the lower Chamber by a life member. A provision of the Electoral Reform law, however, precludes the possibility of any member of the Upper House, who may have obtained a seat in the Lower Chamber, recording his vote in the Upper Chamber upon any measure on which he may already have voted in the Lower House.

Control over Public Finances.

Money Bills must, as has already been seen, originate in the Lower House, and the estimates must receive the assent of the Upper House. Beyond this consitutional division of functions, the control of the two Houses of the Austrian Reichsrath over public finances may be said to be absolutely equal. Clause (*c*) of article ii of the constitution lays down the following as among the attributes of the Reichsrath as a whole, i.e., of both Herren- and Abgeordnetenhaus:—

"The fixing of the Budgetary Estimates, and, in particular, the annual authorization of the collection of taxes, duties, and revenues; the examination and adoption of the closed returns of the State, and of the results of the financial year; the issue of new loans, conversion of existing public debts, the sale, transformation, or mortgaging of State property (real estate); legislation concerning monopolies and State enterprises ("régies"), and, in general, concerning all financial matters which are common to the kingdoms and lands represented in the Reichsrath."

In order to appreciate correctly the degree of control exercised by the Upper House, in conjunction with the Lower, over public finances, it is necessary to give a brief account of the important part played in recent years by paragraph 14 of the constitution in connection with parliamentary obstruction. Paragraph 14 lays down that when there is urgent need of some legislative measure being passed at a time when Parliament is not sitting, such measure may be enacted by way of Imperial Decree, so long as it does not involve a change in the constitution, impose a permanent charge on the State revenues, or alienate State property.

The original object aimed at, when paragraph 14 was framed, was to meet cases of sudden emergency, and it was not at the time contemplated that it would be mainly employed in order to overcome the systematic obstruction of racial parties. Its employment for this object was the consequence of Count Badeni's Language Ordinance of 1897, placing Czech and German on an equal footing throughout Bohemia. With the object of securing the withdrawal of this ordinance, obstructionist methods were adopted by the Germans, and it became impossible to pass the annual Budget. Count Badeni fell, his Language Ordinance was withdrawn, with the only result that German was converted into Czech obstruction. From this date, until Dr. von Koerber's accession to office in 1900, it became necessary to apply paragraph 14 in

order to meet the financial needs of the country. Dr. Von Koerber succeeded in obtaining the assent of Parliament to his first Budget by means of promises of large public works in various parts of the country, the expenditure of as much as 80,000,000l. being contemplated for this purpose. In 1902, however, Czech obstruction, taking the form of a constant flow of urgency motions, again impeded the passing of the annual Budget, and both in 1903 and 1904 recourse was had to paragraph 14.

This period of obstruction was closed, and the fall of Dr. von Koerber occasioned, by the necessity of issuing a loan for military purposes. The Austrian banks were, however, unwilling to advance money upon the security of article 14, even upon advantageous terms, on the ground that paragraph 14, while expressly contemplating emergencies, lays down that no permanent charge is thereby to be made on the public revenues. Thus while the paragraph would cover the contraction of a temporary floating debt, it can provide no sanction for any addition to the permanent indebtedness of the State, and is the less valid as security in that decrees promulgated under paragraph 14 are liable to subsequent revocation by either House of Parliament.

It results from the foregoing that, under stress of unforeseen contingencies during the era of racial obstruction in Parliament, paragraph 14 of the Austrian constitution received an interpretation such as practically to deprive the two Chambers of the Reichsrath of their control of the Budget; and that in Austria this interpretation may prevail for an indefinite period, provided no permanent loan has to be issued, no old loan to be converted, and no State property to be sold. When these latter contingencies become imperative the Government has to choose between the alternatives of resignation, compliance with the demands of the obstructive elements in Parliament (a matter often difficult since, as in the years 1897-1900, compliance with the demands of one racial group may engender fresh obstruction on the part of a hostile group), or of recommending the Crown to suspend *motu proprio* the constitution, and modify it in such a manner as to meet the peculiar exigencies of Austrian parliamentary life.

DAYRELL CRACKANTHORPE.

August 6, 1907

BAVARIA AND WURTEMBURG.

No. 2.

Mr. Cartwright to Sir Edward Grey.—(Received September 2.)

MUNICH, August 30, 1907.

SIR,—With reference to your Circular of the 10th ultimo, I have the honour to inclose herein short reports on the constitution and powers of the Upper Chambers of the kingdoms of Bavaria and Würtemburg.

I have, etc.,

FAIRFAX L. CARTWRIGHT.

Inclosure in No. 2.

REPORT ON THE BAVARIAN PARLIAMENT.

Constitution of the Upper Chamber.

The Bavarian Parliament, created in 1818, and then called "Ständeversammlung," was reorganized in 1848, after the revolutionary movement of that year, and since then it has been called the "Landtag." This "Landtag" consist of two Chambers, the Upper Chamber ("Kammer der Reichsräte") and the Lower Chamber ("Kammer der Abgeordneten.")

The Upper Chamber is composed of:—

1. The Royal Princes who are of age.
2. The Princes of Ottingen-Ottingen and Thurn and Taxis, as holders of hereditary Offices of State.
3. The two Bavarian Archbishops.
4. The representatives of certain great noble families who still possess within the kingdom certain manorial estates. If they lose these they lose their seat in the Chamber. At present they number forty-six.
5. A Bavarian Bishop nominated by the King.
6. The President of the Protestant Upper Consistory.
7. Persons called to a seat in the Upper Chamber by the Crown. This honour may be either hereditary or conferred only for life. At present there are seventeen of such Members.

In 1907 the Bavarian Upper Chamber consisted of eighty members.

The Royal Princes are allowed to vote at the age of 21, other hereditary members of the Chamber at the age of 25.

The number of hereditary members which the Crown can create is unlimited, but the number of life members is limited to one-third of the total number of members of the Upper Chamber, excluding the Royal Princes and the Princes of Ottingen-Ottingen and Thurn and Taxis.

Persons who aspire to be called to the Upper Chamber for life must either have rendered great services to the State, or they must be of noble birth or be persons of great private means.

Persons who aspire to enter the ranks of the nobility who possess hereditary seats in the Upper Chamber must have held Bavarian nationality for six years, or belong to the Bavarian nobility and have acquired entailed estates ("Fideicommiss").

The President of the Upper Chamber is named by the King for the period of one session.

The Chamber is divided into seven Standing Committees, to which all Bills are referred for a report. One of these committees deals with financial questions.

Constitution of the Lower Chamber.

The Bavarian Lower Chamber is composed of 163 members, that is, one deputy for about 38,000 of the population. Candidates must be Germans possessed of Bavarian nationality for at least one year, and be 25 years of age.

The Lower Chamber is divided into five Standing Committees to report on Bills.

Finances.

The Government introduce the Budget into the Lower Chamber, and it lasts for a period of two years. It becomes law when it has been sanctioned by the two Chambers. If disputes arise with regard to certain points between the two Chambers, the disputed matter is sent backwards and forwards till finally settled. No increase in the national debt can be made without the approval of the two Chambers.

Disputes between the two Chambers.

In 1902 a slight friction arose between the two Chambers. The President of the Lower Chamber, Dr. von Orterer, took public exception to the language used by Count Törring, member of the Upper Chamber, who had asserted in a speech that the Lower Chamber was wasting its time in idle discussions and not getting on with its work. President von Orterer declared that language of this kind was intended to discredit the Lower Chamber, and would lead to friction between the two Chambers.

At the time of the introduction of the new Bavarian Electoral Reform Bill (1904), a good deal of friction arose between the represntatives of the various poli-

tical parties, and Count Lerchenfeld, President of the Upper Chamber, advised that members of the two Chambers should avoid, as far as possible, criticizing the proceedings of the other Chamber. The Prime Minister, Baron von Podewils, expressed his regret at the attacks made by one Chamber upon the other, as they contributed to disturb the harmonious working of the two Chambers, a harmony which was so necessary if they were to accomplish good work.

The dispute over the amendments made by the Upper Chamber in the proposed electoral law led to considerable friction with the Lower Chamber, and, finally, to adjust matters, the Presidents of the two Chambers met, and, after conferences restored harmony, and the Bill in its present form was finally passed.

Report on the Wurtemburg Parliament.

Composition of the Chambers.

The law altering the constitution of Würtemburg passed both Chambers on the 16th July, 1906, and became effective on the 1st December of that year.

The reasons why a new law altering the constitution had become necessary was owing to the fact that the number of hereditary members of the Upper Chamber had been gradually diminishing in consequence of the extinction of noble families possessing hereditary rights. The Upper Chamber required strengthening in numbers, and a law for that purpose was, after much discussion, eventually passed.

At present the Upper Chamber consists of:—

1. The Princes of the Royal House who are of age.
2. The nineteen heads of certain great noble houses who are in possession of landed estates within the kingdom enjoying feudal rights.
3. Six life members appointed by the King.
4. Eight representatives of the lower nobility.
5. Six ecclesiastical representatives—two Catholic and four Protestant.
6. Two representatives of the universities.
7. Five representatives of industrial interests—two chosen by traders, two by agriculturists, and one by the artisan ("Gewerbe") class.

The Wurtemburg Upper Chamber at present consists of fifty members.

The Upper Chamber is limited in numbers, except as regards the Princes of the Royal House. In the event of the extinction of any of the great hereditary noble families, the King can in their place appoint a life member to the Upper Chamber

Constitution of the Lower Chamber.

The lower Chamber consists of:—

1. Sixty-three deputies from provincial districts.
2. Six deputies from six other towns.
4. Nine deputies from the Nekar and Jagst districts.
5. Eight deputies from the Black Forest district and that of the Danube.
6. One deputy from the University of Tübingen.

The Lower Chamber consists of ninety-three members.

Finances.

All Bills have to be agreed to by both Chambers before they can become law.

The Budget is introduced into the Lower Chamber, and when voted in its entirety it is sent to the Upper Chamber, which has the power either of rejecting it or of mak-

ing amendments. The Budget then returns to the Lower Chamber, which discusses it anew, and the decision it comes to with regard to details is final. The Upper Chamber then has only the power of rejecting the Budget in its entirety. In the event of its becoming impossible for the two Chambers to agree as to the Budget, the votes cast in both Chambers for or against it are added together, and the resulting majority decides the issue. Should the votes be equal, the President of the Lower Chamber has the casting vote.

Disputes between the two Chambers.

In the year 1904 an Elementary School Bill was introduced, clause 4 of which gave the control of the schools to the teaching board and taking it away from ecclesiastical control. The Bill was passed by the Lower Chamber by a substantial majority, but met with much opposition in the Upper Chamber, which eventually rejected clause 4.

This gave rise to a storm of indignation against the Upper Chamber throughout the country, and on the 16th June the Lower Chamber passed a resolution by 62 to 17 calling upon the Government to introduce a Bill for altering the constitution of 1810. Meetings were held throughout the kingdom threatening the Upper Chamber with extinction. In the autumn of 1904 the Speech from the Throne promised the introduction of a Bill revising the constitution of the Upper Chamber, and on the 15th June, 1905, it was laid before the Lower Chamber, and, after long debates, it was approved by the Upper Chamber, and became law on the 16th July, 1906.

By the alteration introduced into the constitution of the Upper Chamber its influence in the country has been increased.

BELGIUM.

No. 3

Sir A. Hardinge to Sir Edward Grey.—(Received September 16.)

BRUSSELS, September 12, 1907.

SIR,—I have the honour to transmit herewith, as desired in your Circular despatch of the 10th July last, a report by Mr. Wyndham, First Secretary of this Legation, on the Senate or Second Chamber of the Kingdom of Belgium.

I have, etc.,

ARTHUR H. HARDINGE.

Inclosure in No. 3.

REPORT BY MR. WYNDHAM ON THE SENATE OR SECOND CHAMBER OF THE KINGDOM OF BELGIUM.

Constitution of 1831.

When Belgium separated from Holland, and when the constitution of 1831, which, with certain modifications, still remains in force to-day, was framed, there was considerable hesitation as to the nature and position of the Second Chamber. The doubts which existed in the minds of those who drew up the constitution can be traced in the altered draft of particular clauses and in the slightly anomalous position, which will afterwards be touched upon, finally given to the Second Chamber. Some members of the Constituent Assembly were in favour of only one single Chamber, while others wished that there should be a Second Chamber with members appointed by the King.

As is usually the case in Belgian history, a compromise was effected, and a middle course was steered between these extreme views. The Parliament as finally established, consisted of two elective Chambers. This solution was all the more natural since the French rule under the Revolution and the Empire had so completely swept away the ancient orders or estates of the realm that a revival of the old representative Assemblies based upon them was impossible, whilst the traditional Belgian jealousy of the authority of the Crown, intensified by the recent experience of Dutch rule, militated against the creation of a House of Peers as that of the French Restoration or even of the July Monarchy.

Two Elective Chambers.

The two Chambers being elective, it will be necessary to consider briefly the condition under which they were originally chosen and to examine the more important modifications which have regulated the franchise since the constitution was originally established.

The franchise under which the House of Representatives was elected was for eighteen years a very restricted one, and the electorate consisted of about 45,000 electors out of a population of 4,000,000. The constituencies were, and still remain, the "arrondissements" or administrative subdivisions of the nine provinces into which Belgium is divided. These "arrondissements" may for electoral purposes be redistributed, and at present out of the thirty-one electoral divisions six are formed by the union of two, and two by that of three "arrondissements." There is no distinction between urban and rural constituencies, but the number of members is based on population in the ratio of one member to every 40,000 electors, whether possessing one or several votes. It follows that some electoral divisions return many more members than others; thus the Brussels division returns twenty-one, the Antwerp division fourteen, and the Liége division twelve, while the thinly-populated Luxembourg division of Neufchateau-Viron is only represented by two. There is a decennial redistribution of seats, new ones having to be created to meet the increase of population shown by each decennial census. The same constituencies elected the Senate, but as every senator required, under the Electoral law of 1831, to pay taxes equal to 1,000 florins a year, the choice of the electorate was confined to the wealthy classes. It has been calculated that before the reforms of 1892 and 1893 less than 500 persons for the whole of Belgium were actually eligible for the Senate.

Electoral Reform.

Under the new Electoral law, passed in April, 1893, which, although its effects were subsequently modified by proportional representation, still remains in force, the vote was given after a year's residence to every citizen 25 years old, and not disqualified either permanently or temporarily by conviction of crime or the receipt of public charity. Every citizen over 35 years of age, and married or a widower with legitimate issue, paying at least 5 fr. a year in house tax, or owning real property worth 80l., or having derived for two years previously 4l. a year from Belgian funds, became entitled to a supplementary vote. Two supplementary votes were bestowed on electors who had received a diploma of higher or secondary education, or who filled, or had previously filled, any appointment implying a superior education. No person could have more than three votes, or vote in more than one constituency, and the exercise of the franchise was rendered obligatory under penalty of a fine.

Proportional Representation

Succeeding elections conducted under this law made it more and more evident that its effect, given the growth of Socialism and the rise of a third party in addition

to the Catholic and Liberal parties which had hitherto practically occupied the whole of the political area, was to make Parliament a very inaccurate reflection of the national opinion or of the real relative strength of opposing views, and many moderate men became convinced that the maintenance of the electoral system established in 1893 might be fraught with grave dangers to the future working of parliamentary institutions. Of these dangers the most serious was the prospect of the eventual disappearance of the old Liberal party, which was being crushed out of parliamentary existence between the Clerical and the Socialist organizations. To remedy these dangers the systems of proportional representation was introduced and finally carried, after various vicissitudes, in 1899. Inasmuch as the mode of election to the Chambers is not explicitly laid down by the articles in the constitution which deal with the qualifications of electors, the measure did not, like the introduction of universal suffrage and of plural voting, require the two-thirds majority in both Houses necessary for carrying a change in the constitution and it can therefore be repealed or modified without them. Sir Arthur Hardinge has fully reported upon the system and the political results of proportional representation in his despatch of the 28th June, 1906, which was published in the same year as a parliamentary paper, and it is thus hardly necessary to enter into details upon the subject.

Present Constitution of the Senate.

The Senate as at present constituted consists of 110 members, elected for eight years, one half of these members being subject to re-election every four years, instead of every two, as is the case with the members of the Lower House. Of these members eighty-three are chosen by direct elections by the votes of the same electors as elect the House of Representatives, with this single difference, that electors for the Senate must be 30 instead of 25 years of age. The same system of representation according to population holds good with regard to the Senate as with the Lower House, but in the case of the Senate, every 80,000 persons are represented by one senator, whereas in the Chamber a Deputy represents 40,000 electors. According to the electoral lists of 1901-2 there were 701,603 persons qualified to vote for the Senate having one vote, 317,669 persons with two votes, and 236,627 with three votes, a total of 1,255,899 electors with 2,046,822 votes. The remaining twenty-seven senators are elected by the County Councils ("Conseils Provinciaux") which are themselves elected by all citizens qualified to vote directly for the Senate, the electoral division in the case of these Councils being, however, not the "arrondissement," but a division of it called the "canton," and standing in the same relation to the "arrondissement" as the latter does to the province. The electoral divisions returning senators by direct election are, as has been already shown, the same as those returning members for the House of representatives; but two or three such divisions are more frequently fused into one for the purposes of senatorial elections, the number of electors being a good deal smaller on account of the difference of the age limit. The Senate is thus the product of almost universal suffrage tempered by the plural vote, and, in the case of twenty-seven of its members, to whom the system of proportional representation is not applied, by the substitution of indirect for direct election. Its otherwise democratic character is qualified by the provision in the Constitution of 1831, which the Reform Acts have preserved in an altered form, and which obliges every candidate for the Senate, besides being at least 40 years of age, to be the owner or occupier of real estate valued at 12,000 fr. (£480) a year, or to pay 1,200 fr. (£48) a year in direct taxes. The Senators directly elected by the democracy must, therefore, be middle-aged men, with a substantial stake in the country. Those elected by the Provincial Councils are not required to possess this property qualification, and this circumstance, joined to the fact that these local bodies are occasionally very radical in complexion, accounts for the presence among the provincial senators of several ultra-democratic politicians.

Its general character.

The Senate as at present constituted, and excluding the Heir Apparent to the Throne, who, by an exception in the constitution, has an *ex officio* seat in it, but is not of course identified with any political party, contains sixty Catholic members, forty-two Liberals, one Independent, and seven Socialists. It is not easy to classify with accuracy the professions or occupations of the various members, as the divisions would necessitate a large number of cross classifications. There is but one ecclesiastic, some forty-three members are lawyers and persons representing Liberal professions, and about the same number are drawn from the business and commercial classes, from bankers, owners of or partners in large industrial works, and merchants. There is a considerable sprinkling of the representatives of the aristocratic families, more so than in the Lower House, where the large majority consists of lawyers, while the landed interests are represented by all the categories above mentioned. On the whole, the Senate represents not so much the aristocracy as the business classes of the country. The position of senator hardly appeals to a young and ambitious man; there is not within the walls of the Senate the same scope as in the Lower House or in the law courts, nor does its membership carry with it the same prestige as that of belonging to an hereditary House. But the position of senator is one of dignity, and, compared with the duties of membership of the Lower House of comparative ease. Both Houses being elective, there is no social or class distinction between the two, and a senator will occasionally, on leaving the Upper House, seek election in the Lower. The property qualification insures that the members of the Senate should be drawn from classes of a certain financial position—or, at all events, in easy circumstances—while the age qualifications of the electors and of the candidates, together with the system of the plural vote and proportional representation, insure the existence of a stable and conservative element, counterbalancing the elective character of the Senate and the low franchise under which it is chosen. These qualifications have so far kept from the Second Chamber any Socialist or Labour element sufficient to affect its general character; its debates are usually conducted with greater calm than those of the Lower House, and, if anything, attain a higher order of merit. No popular feeling exists in the country against the Senate, and no party, not excluding the Socialists, are in favour of entirely doing away with a Second Chamber, though the more extreme members of the Left advocate the abolition of the property qualification and the plural vote.

Limitations to Powers of Senate.—Money Bills.

As has been pointed out at the beginning of this report, there existed considerable doubt in the minds of the framers of the constitution as to the position of the Second Chamber. In the original draft article xxvii ran as follows:—

> "L'initiative appartient aux trois branches du pouvoir législatif. Néanmoins toute loi relative aux recettes on aux dépenses de l'Etat ou au contingent de l'armée doit d'abord être votée par la Chambre élective."

This limitation was evidently inserted in imitation of the privileges enjoyed by the House of Commons under the British constitution, and though it was ultimately decided that the two Chambers should be elective the limitation was preserved. In the constitution, as finally adopted, Article xxvii, after declaring that the right of initiating legislation belongs to each of the three branches of the legislative power, states that "néanmoins toute loi relative aux recettes et aux dépenses de l'Etat ou au contingent de l'armée doit d'abord être votée par la Chambre des Représentants." Thus the original clause, though altered in wording, remained substantially the same. It was apparently adopted without discussion, and continues an anomaly in a constitution where both Chambers are elective. In 1902 the Senate proposed to repeal this clause, but the suggestion was thrown out in the Chamber.

Disputes between the two Chambers.

As was inevitable, various questions have from time to time arisen between the two Chambers as to the interpretation of Article xxvii, but the disputes have never assumed the proportions of a serious struggle, and have either been allowed to drop or have ended in an amicable compromise. Thus, in 1834, the Senate proposed to create a Council of State, and the question arose as to the payment of the councillors. It was decided that the Senate was not deprived of the right of voting expenditure, but that it could not make any definite stipulation as how the funds should be provided. Again, in 1841 a motion was introduced in the Senate making definite provision for additional expenditure on the improvement of country roads. A point of order was raised and the motion was withdrawn, and another motion couched in more general terms substituted, to the effect that the additional expense should be borne partly by the State and partly by the various communes. In 1845 the question of increasing duties on agricultural produce was raised in the Senate, but it was particularly pointed out that this increase was not for revenue but purely for protection. On the Bill being sent down to the Chamber of Representatives a fresh Bill was substituted, and the new Bill, after being passed in the Chamber, was accepted by the Senate.

The most serious question that has arisen regarding Money Bills was in 1869, when the Senate threw out by a catch vote the Budget of the Ministry of Justice, and returned it without discussion to the Chamber of Representatives. A vigorous protest was made by the Prime Minister, M. Frère-Orban who was also Minister of Finance, and the Budget was voted again by the House of Representatives by a majority of 62 to 42. The incident was not, however, so much a constitutional difference between the two Houses as a vote of confidence in the Government, and especially in the Minister of Justice, M. Bara. The question did not assume an acute form as between the two Chambers, and dropped with the fall of the Liberal Ministry in the following summer.

Spirit of Compromise.

From the above examples it will be seen that neither House has in the course of Belgian history ever attempted to push its claims to extremes, and the temporary disputes have been settled by compromise and the exercise of common sense. Any permanent estrangement would, moreover, be rendered impossible through the constant renewal of the Chambers by the electorate, one-half of the Senate being subject to re-election every four years, and the whole body in the event of a parliamentary dissolution.

The general opinion of constitutional writers, so far as I can gather, is to the effect that, the restriction with regard to the initiation of Money Bills being an anomaly, its interpretation should be liberal, and that the Senate not only has the right to accept or reject a Money Bill, but also to amend it.

Gradual Diminution of Control of the Senate over the Budgets.

As a matter of fact, the control of the House of Representatives over the Budget has become practically greater than was contemplated under the theory of the constitution. Of recent years, and especially since the introduction of universal suffrage, the debates on the various Budgets—and it should be remarked that the ordinary Budget in Belgium is made up of fifteen distinct Bills—have been extended to an inordinate length, and the Budgets have been only sent up to the Senate towards the close of the parliamentary session. The time necessary for the full discussion of these various Bills has been thus of necessity curtailed, and the Senate

has by the force of circumstances been obliged to restrict its right of amendment, and even to limit its duty of criticism and control. This condition, the result of the prolonged debates in the Lower House, has been the cause of frequent, though hitherto of ineffectual protest.

General Spirit of Harmony between the two Chambers.—Possibility of approaching Conflict.

The right of the Senate to amend or reject measures other than Money Bills has never been called in question, but as both Chambers are elected by similar constituencies, their political complexion and the balance of parties within them are so similar that its exercise has been infrequent. It must further be remarked that the Catholic or Conservative party has for twenty-three years had a majority in both Houses of Parliament, and that its legislation has rarely been of a character to provoke a conflict between the popular and revising Chambers. It appears, however, likely that the Mining Bill, which was carried last spring by a coalition between the Extreme Left and the Young or Democratic Catholics, and which brought about the fall of the De Smet de Naeyer Cabinet, will be amended if not rejected in the Senate, and that though the Government and the majority of the House of Representatives will acquiesce in the decision of the Second Chamber, or accept some compromise on the subject, the Labour party will violently denounce it, and demand, not indeed its abolition, but its reform on more democratic lines.

PERCY C. WYNDHAM.

September 12, 1907.

DENMARK.

No. 4.

Sir A. Johnstone to Sir Edward Grey.—(Received October 21.)

COPENHAGEN, October 17, 1907.

SIR,—In accordance with the instructions contained in your Circular despatch of the 10th July last, I have the honour to transmit a report by Mr. Vaughan on the composition and functions of the Danish Upper House, as well as an account of the disputes which have arisen of late years between the two Houses and the means by which these have been adjusted.

The efforts of the party of reform are more directed towards obtaining an Upper Chamber of increased Liberal tendency than towards curtailing its powers; and none but a few Extremists have shown any wish to do away with the double Chamber system, which all the leading men in this country appear to consider the wisest form of parliamentary Government.

I have, etc.,

ALAN JOHNSTONE.

Inclosure in No. 4.

REPORT BY MR. VAUGHAN ON THE DANISH "LANDSTING," OR UPPER HOUSE.

The Danish Rigsdag, or Parliament, is composed of two Chambers: the Lower House, known as the Folketing, and the Upper House, known as the Landsting.

The Landsting is invariably composed of sixty-six members, of whom twelve are

nominated by the King for life and the remaining fifty-four are elected for eight years, seven representing the town of Copenhagen, forty-five the other districts, town and county, and one each the islands of Bornholm and the Faröes. Half of the number of elected members retire by rotation every four years. A member of the Landsting may only be elected for a constituency in which he resides, whereas a member of the Folketing may be elected for any constituency.

The preliminary process of election, which in its final stage is conducted in accordance with the rules for proportional representation, is somewhat complicated.

By section 49 of Law No. 16 of the 7th February, 1901, the Danish representative area is divided into twelve electoral circles, each with a specially determined number of representatives.

These electoral circles, or districts, are subdivided into "parishes," whose smaller individuality is retained for certain purposes, while for others it is merged in the larger division of the "circle."

In each circle there are two classes of electors:—

Firstly, those who are direct electors and themselves vote for the candidate; and

Secondly, those who are chosen as deputy electors by a majority vote of such persons as enjoy the franchise for elections to the Folketing.

But this does not apply in the case of Copenhagen, where the system of election differs from that in the rest of the country, the final elections in that city being made entirely by deputy electors, who are chosen as follows:—

All those who enjoy the franchise for elections to the Folketing vote also for a certain number of these deputy electors. Voters who are taxed on a yearly income of 4,000 kroner (£222 4s. 6d.) also choose an equal number of them, and the deputy electors in turn choose seven members for the Landsting.

In places other than Copenhagen the final elections are made by electors, half of whom are deputy electors having been chosen by a majority vote of those who enjoy the franchise for elections to the Folketing, and the other half of whom are direct electors in virtue of their being the most highly assessed taxpayers in the respective circles.

The former half are chosen, one for each parish, but in the case of the latter half (or direct voter in virtue of assessment) the parishes in the respective circles are "pooled" as it were, and the circle as a whole furnishes such a number of direct voters as corresponds to the number of parishes in that circle, these voters being the most highly assessed taxpayers in the circle as a whole, irrespective of the parishes, except in so far that their numbers correspond, as already explained.

The "commercial towns" in a circle, and also the towns of Frederiksberg and Marstal, furnish half the number of final electors corresponding to the number of parishes in the circle, these final electors consisting of the two classes above mentioned (half direct and half deputy), the assessment qualification in these cases, however, is based on a yearly income of 2,000 kroner (£111 2s. 3d.), or an annual payment to the State in direct taxation of 150 kroner (£8 6s. 8d.)

The Landsting enjoys exactly the same privileges in regard to legislation, including finance, as the Folketing, although the latter exercises a predominant influence on the Budget in virtue of section 48 of the constitution, which enacts that this must be first dealt with by the Lower House. As the Budget, which is presented in October, must be passed by both Chambers before the end of the financial year on the 31st March, if most of the time available for its discussion is monopolized by the Folketing, the Landsting, although in theory equally entitled to discuss details, is in practice precluded from doing so owing to lack of opportunity.

In case of either Chamber not accepting the amendments of the other to any measure, provision is made by section 53 of the constitution for the appointment of a

Joint Committee, consisting of an equal number of members from each Ting, who are to meet together with a view to effecting an agreement.

The section reads as follows:—

(Translation.)

Section 53. "When a Bill has been passed in one Ting it must, in the form in which it has been passed, be submitted to the other Ting; if it is altered there, it goes back to the first; if it again undergoes alterations here, the Bill goes back once more to the other Ting. If no agreement is reached, each Ting shall, if one of them demands it, appoint an equal number of members to form a committee, which studies the points of disagreement and furnishes a report to the Tings. A final decision with reference to the Committee's report is taken in each Ting separately."

It need scarcely be stated that, in endeavouring to describe the recent relations between the two Chambers, strict impartiality has been one of the chief objects in view.

An expression of thanks is due to Dr. (Juris) Knud Berlin, author of "Oplösningsretten overfor Lovgivende Forsamlinger" ("The Right of Dissolution with regard to Legislative Assemblies" Copenhagen, 1906) for much valuable assistance in the attempt to elucidate the rather delicate problem.

During the last teen years no serious constitutional disputes between the Landsting and the Folketing have taken place, at least none that can compare with the great constitutional conflict of the years 1873-94.

Latterly, however, the relations between the two Chambers have been of a nature which threatens to entail a fresh conflict, or, what is perhaps more probable, a fresh political compromise.

It would be next to impossible to enumerate the points of difference which stand out pre-eminently from the rest, as the disagreement would appear to be rather of a general than of a special character, owing to the conflicting interests of the largely democratic Folketing and the necessarily conservative Landsting.

On the conclusion of the great political compromise in 1894, which terminated the long and keenly-waged war between the two Houses, the Landsting and the Conservative Government ("Höjre"), which it supported, may, on essential points, claim to have emerged as victors. The Government, which be it remembered had a minority in the Folketing, did not, it is true, succeed in obtaining legislative recognition of the fortification of Copenhagen by land, which had been effected on the strength of "provisional" Budgets and without legal supplies, nor in securing indemnity in repect of the numerous "provisional" laws promulgated during the years of conflict. The "provisional" land fortification, however, received a tacit acknowledgement in that supplies were granted for their upkeep, and, while the Folketing reserved their right of impeaching the Ministers before the "Rigsret" (a special political court provided for in sections 14, 68 and 69 of the constitution, and composed of members of the Supreme Court and an equal number of members of the Landsting), such a step was never considered practicable nor seriously entertained. This victory once achieved, the power of the Landsting commenced to decline. At the compromise the Government had been obliged to agree, either directly or tacitly, not to issue any more "provisional" Budgets, and consequently when they were again forced to obtain the consent of the Folketing to fresh supplies and new laws the Second (Lower) Chamber necessarily became the dominant partner.

The new Moderate Liberal party ("Venstre Reform parti") under the leadership of Herr J. C. Christensen, knew how to make the most of their opportunities. They (the Opposition) apparently showed themselves very ready to negotiate with the Government, and a few of the more important laws of a non-political nature were passed, e.g., the law concerning workmen's compensation, 1898; the law regulat-

ing economic conditions of marriage, April, 1899; and the law respecting allotments for farm labourers, 1899, but they managed to block all the important measures, especially those effecting reforms in taxation and in the tariff, and those relating to the payment of officials, while laying the blame at the door of the Government, whom they reproached with retaining their portfolios year by year, although they could not carry any of the great reforms desired by the country.

The successive Conservative ("Höjre") Cabinets gradually lost the confidence of the electorate, who demanded that government by the Landsting should be replaced by government by the Folketing.

Owing to the predominant advantage enjoyed by the Lower House through the right to discuss the Budget first, as already explained, with the consequent power of restricting its discussion by the Upper House to a few weeks just before the close of the financial year, the Folketing was virtually possessed of the key of the Exchequer. The Financial Committee of the Folketing, in which the Liberals ("Venstre") formed the majority, thus in reality proved more powerful in all matters relating to supply than the actual Government, and when the Sehested Cabinet had come to the end of their resources, much of the money having been expended in the fortification of Copenhagen, and were obliged to ask the Folketing for a public loan, their request was refused. They thereupon resigned, and a Liberal ("Venstre") Cabinet under Herr Deuntzer took office on the 24th July, 1901. The appointment of the Deuntzer Cabinet marked an epoch in Danish constitutional history, in that it was an acknowledgment of the parliamentary system, and this change of Government is consequently known as the "change of system."

At first the new government met with no small measure of success, and managed to pass many of the Bills which they had resisted when in Opposition, but when they endeavoured to give effect to the programme to which they were pledged, the Landsting once more proved that it was a power to be reckoned with, and the Government had to shape their measures accordingly, if these were to stand any chance of being carried through the Upper House.

Many of the items in the original programme of the Liberals ("Venstre") have from time to time met with disaster at the hands of the Landsting. For instance, between the years 1902 and 1906 the Bill presented by the Government in regard to obligatory civil marriage was rejected three times in succession by the Landsting (which desired that it should not be obligatory but optional), although in 1902-3 it was unanimously agreed to by the Folketing. This measure has now been abandoned.

In like manner the Bill relating to reform in criminal and civil procedure, aiming at the introduction of public and oral proceedings and the prosecution and jury systems in the law courts, has for many years (1901-2 to 1906-7) been wandering backwards and forwards between the two Chambers without any compromise being effected. The bone of contention in this case being the class from which jurymen are to be drawn.

But perhaps the main source of conflict has been the Communal Voting Reform Bill, by which it is proposed to introduce equal and universal suffrage at communal elections. This Bill has been under discussion since 1903, and the Landsting has, so far, offered strong opposition to it.

The Bill deals with elections for the "Amtsraad" (Communal or County Council), the "Byraad" (Town Council), and the "Sogneraad" (Parish Council).

By the present system, members, exclusive of the "Amtmand," or Chief Magistrate, who is Chairman of the Council, are elected to the Communal Council, ("Amtsraad")—the number composing which is always uneven—partly, i.e., the larger "half," by deputy electors, chosen one by each Parish Council ("Sogneraad), and partly, i.e., the lesser "half," by the most highly assessed taxpayers in the commune who vote direct, and to the Parish Council, the number of whose members is also

uneven, partly, i.e., the larger "half," by the highest taxed fifth of the inhabitants, and partly, i.e., the lesseer "half," by all the taxpayers over 25 years of age, both parties being direct voters in this case.

The same system applies to the Town Council ("Byraad") as to the Parish Council, except that for the Town Council the lesser "half" of the deputy electors are chosen by the highest taxed fifth of the inhabitants. For all three councils elections are at present decided by a majority of votes.

Before reviewing the Bill it is necessary to explain that the balance of power in the Landsting is virtually in the hands of a party which practically does not exist in the Folketing, viz., the Free Conservatives, consisting of nine members under the leadership of Count Frijs, as their nine votes are at present sufficient to decide the fate of any measure. It was consequently between this party and the Government that negotiations took place in regard to the Bill.

In the new measure the Government's, or, in other words, the Folketing's principal proposals were roughly as follows:—

1. For the Parish and Town Councils, one man one vote among the taxpayers, including servants and women, with a residential qualification of one year.

2. Abolition of the assessment qualification for the Communal Council ("Amtsraad").

3. The system of proportional representation to be applied to all three Councils.

4. Members of the Communal Council to be elected by deputy electors, who (two from each Parish Council) must be elected by and from amongst members of the Parish Council.

The counter-proposals put forward by the Landsting were:—

(*a.*) By the old Conservative Right ("Höjre"):—

1. For the Parish and Town Councils the principle of one man one vote, etc., including women, but not servants (though, finally, this point was ceded), to be accepted, but only as regards "half" of the Council, and with a two years' residential qualification, while the other "half" must be chosen by voters over 40 years of age.

2. The assessment qualification for electors of deputy electors to the Communal Council to entail a higher number of votes than at present, viz., three from each Parish Council, and as many from the most highly assessed taxpayers, instead of one and one respectively.

3. Proportional representation to be adopted.

4. Voting to be compulsory.

(*b.*) By the Free Conservatives, and these proposals were more important as the negotiations turned on them:—

1. For the Parish and Town Councils, the principle of one man one vote, etc., including women and servants, to be accepted, but with a residential qualification of two years. (It was stated, however, that the Bill would not be sacrificed on this point.)

2. The assessment qualification for the electors of deputy electors to the Communal Council to entail two votes, i.e., two from each Parish Council and two from the most highly assessed taxpayers.

3. For the Parish and Town Councils every voter over 40 years of age to have two votes—half of the members of the Councils to be elected by those

voters over 40 years, and the other half by those over 40 years and the rest of the voters conjointly.

4. Proportional representation to be adopted.

5. The Parish Council to be restricted from raising the existing taxation beyond specified limits.

This last condition of the Free Conservatives was answered by a proposal of the Government that previous to the imposition of higher taxation a *referendum* to all the voters i.e., taxpayers should be necessary.

6. Municipal trading to be limited to certain specified undertakings, such as tramways, telephones, etc. Information as to how far this point was insisted on is not forthcoming.

Protracted negotiations took place in regard to the Bill between a member of the Government and Count Frijs during the session 1906-7, with a view to effecting a compromise, but unfortunately they led to no definite results, and the Rigsdag adjourned, both Houses maintaining their original ground.

The results of the negotiations, so far as they went, were roughly that:—

1. The principle of proportional representation was accepted by both parties.

2. Womens' suffrage was accepted by both parties for the two Lower Councils.

3. Both parties also agreed that there should be no assessment qualification for the two Lower Councils, while there were to be restrictions as regards increased taxation. On the point of restrictions the Government would only grant a *referendum,* while the Free Conservatives insisted that any increased taxation proposed by the Parish Council must have the previous approval of the Communal Council, and by the Town Council of the Ministry of the Interior.

They also insisted on an age qualification for both the Lower Councils.

4. The Government are believed to have agreed that an assessment qualification should be maintained for the Communal Council, but it is not known what view the Folketing would take of such a concession to the Landsting.

Other measures of political interest have also been proposed by the Folketing and rejected by the Landsting, such as the enlargement of the Folketing constituencies and the revision of section 32 of the constitution, which enacts that the Folketing shall consist of approximately one member for every 16,000 inhabitants. This has always been a dead letter, as the present Chamber consists of 114 members, while for compliance with the section about 160 would be necessary. The Government proposal was to increase the present number to a fixed total of not less than 124 nad not more that 132.

Again, a Bill relative to Ministerial responsibility has been under discussion since 1904-5. Section 12 of the constitution merely states that the Ministers are responsible, and that their responsibility is to be more closely defined by law.

On the other hand, Bills which have originated in the Landsting have been rejected by the Folketing, as, for instance, that proposing an increase in the excise duty on alcohol in 1899. This proposal the Folketing dismissed in March, 1900, it being considered that such an impost would weigh heavily on the working classes, who, in Denmark, consume a large quantity of alcohol in the form of "Akvavit."

It is commonly supposed that the Landsting and Folketing are not altogether at one on the subject of tariff matters, the Landsting being credited with protectionist,

and the Folketing with free trade, proclivities. It is believed that the Upper House would not be averse to a duty on corn.

The apparent impotence of the Folketing to enforce its will in the Landsting has naturally given rise to much bitter comment from the Social-Democratic and Radical parties, and many strong threats have been used both at political gatherings and in the press of waging war against the Landsting, but the responsible Ministers have so far always counselled patience, especially as the means at the disposal of any Government for such a campaign are necessarily limited.

It is true that the Crown can at any time dissolve the Landsting, but it is a much-debated question whether such a dissolution would embrace the whole Landsting, or only the elected members. As already stated, of the sixty-six members of the Landsting, twelve are appointed by the King for life, while fifty-four are popularly elected for eight years and the question in dispute, which is peculiar to Denmark, is whether the twelve members appointed for life must vacate their seats at a dissolution—which would enable the Crown to appoint twelve new ones to fill their places—or not.

The Liberals ("Venstre") maintain that they must, relying on the fact that by the former constitutions of 1855 and 1863, they were appointed for twelve years only, while the Conservatives ("Höjre") maintain the opposite view, and interpret appointment "for life" as exempting them from the effects of a dissolution.

Section 22 of the present constitution, on which the Liberals further rely, merely states that the King has the right to dissolve either Chamber, and contains no reservations.

Section 39, on which the Conservatives again rely, states that the appointment of the nominated members is for life, and, in specifying the cases in which such members may, or must, vacate their seats, makes no mention of a dissolution.

Unless the Government can dissolve the whole Landsting, including the twelve nominated members, most of whom were appointed whilst a Conservative ("Höjre") Government were in office, they cannot embark on a campaign against that Chamber with any certainty of success, in view of the peculiar conditions attending its composition. The fact that a large number of votes are allotted to the highest taxpayers in the country, and consequently to the large landed proprietors, renders it very unlikely that an election, consequent on a dissolution, would result in much change among the parties returned, unless the present system of suffrage were radically altered.

While many persons, no doubt, are of opinion that, if no other means can be found to enforce the will of the Folketing, then the twelve life members must at any cost be deprived of their seats at a dissolution, yet there would appear to be no general desire among the masses to raise a new constitutional conflict, if such can be avoided; and it is intelligible that a Government should shrink from applying to the constitution an interpretation which many people refuse to accept, especially as the issue of a dissolution itself cannot be otherwise than doubtful. Moreover, a precedent created by one Government may be applied by another.

The fact that most of the Conservative nominated members are well advanced in years no doubt exercises a moderating influence with those who would lead a campaign against the Upper House, as in the natural course of events their places will be filled by Liberal nominees—always provided the present Government remain in office—with the ultimate result that the Liberals will obtain the necessary majority. This is also adduced as an argument why the Landsting, as at present constituted, should be anxious to effect a compromise with the Folketing in regard to matters of high political importance, before it loses the majority in the Upper House. Four Liberal life members have already been nominated by the Crown since the present party came into power.

Prophecy with regard to the fate of the twelve nominated members of the Landsting would be idle at this juncture, but the advent of a fresh political compromise of a general nature would undoubtedly be welcomed by many as the most efficacious means of preventing a more acute development of existing disagreements.

The nature of the relations between the two Chambers during the last ten years will be more readily appreciated if the events which led to the great political compromise of April, 1894, are briefly passed in review, and if the main points of the compromise itself are explained.

In 1864, on the conclusion of the war, and after the loss of the Duchies, Denmark was faced by the problem as to which of her two constitutions should be definitely adopted. That of 1849 had in 1855 been specially restricted to Denmark alone, whilst that of 1863 applied to Denmark and Schleswig jointly. The Left demanded that the country should revert to that of 1849, but the Right considered that under it Conservative interests, especially as regards the Landsting, were not sufficiently safeguarded, and the National Liberal party supported them, as they considered the provisions of the constitution in question too democratic.

An alternative proposal was finally agreed upon between Count Frijs (the father of the present leader of the Free Conservative party), representing the Landsting, and Herr Hansen, the leader of the Left, which resulted in the present constitution of the 28th July, 1866. This understanding between Count Frijs and the Left (which is generally known as the "understanding between the great and the small farmers") lasted till his retirement from the Presidency of the Council in 1870, when the new Cabinet, under Count Holstein-Holsteinborg, effected a compromise between the landed interests of the Landsting and the official and business interests of the National Liberal party. This led to a new party, known as the United Left, being formed in opposition to the Government, with the maintenance of the parliamentary system as the chief item in its programme. In 1872 the United Left obtained a majority in the Folketing, and that Chamber agreed to petition the King with a view to the formation of a Left Cabinet, representative of the majority in the Folketing, but without result. The Folketing next threw out the Budget (1873), and the Government replied by dissolving the Ting. The long war between the Landsting, which formed the Government, and maintained that according to the constitution it had equal rights with the Folketing, and that the King could act independently of this Chamber had now begun.

In 1875 Herr Estrup formed a new Government, who retained their portfolios until 1894. The chief items in their programme were the fortification of Copenhagen and the equal rights of the Landsting. The Left and the Folketing were willing to vote 30,000,000 kroner (1,666,666*l.*) for defence purposes, but not for the fortification of Copenhagen, and they desired that the necessary funds should be raised by an income and property tax. This question of defence led to the Folketing being dissolved in 1876. Subsequently, when the Tings could not come to an understanding about the Budget, the first "provisional" Budget was issued in April, 1877, on the strength of section 25 of the constitution of 1866, which enacts that, "in extremely urgent cases the King can, when the Rigsdag is not in session, issue provisional laws, which must not, however, conflict with the constitution, and must always be submitted to the following Rigsdag."

For the next few years the Folketing voted such extremely limited Budgets (known as the "shorn poodles") that the Government again resorted to the system of provisional Budgets from 1885 to 1894, and under them money was devoted to services which the Folketing had expressly vetoed, especially the fortification of Copenhagen.

Feeling in the country ran very high, but people were weary of a conflict which prevented the necessary laws being passed, and in April, 1894, the Moderate Left and the Right in the Folketing made the famous "compromise," to which the Landsting agreed.

Allusion has already been made in the body of this report to the results emanating from the compromise, the main object of which was to prevent, in the future, political conflicts such as existed at the moment, and to put an end to the system of "provisional"

Budgets. The Rigsdag passed a resolution amongst others to the effect that, in future, if the discussion of the Budget for the ensuing financial year had not been completed by the end of the current financial year, the Government ought to propose, and the Rigsdag ought to agree, to an "interim" Budget, framed on lines which they indicated and for a period not exceeding two months.

This arrangement, which it must be borne in mind was neither part of the constitution nor even a law, and could be denounced by either Ting at any time, received important recognition in 1902, in that the Liberal Reform party, who were then in office, but who had been the opponents of the compromise in 1894, availed themselves of this form of "interim" Budget, the two Chambers not having completed the discussion of Estimates by the end of the then financial year.

J. C. T. VAUGHAN.

COPENHAGEN, October 10, 1907.

FRANCE.

No. 5.

Sir F. Bertie to Sir Edward Grey.—(Received August 9.)

PARIS, August, 5, 1907.

SIR,—I have the honour to transmit to you herewith a report drawn up by Mr. George Grahame, Second Secretary at His Majesty's Embassy, on the Senate in France, in accordance with the instructions conveyed to me in your Circular despatch of the 10th ultimo.

I have, etc.,

FRANCIS BERTIE.

Inclosure in No. 5.

REPORT BY MR. GRAHAME.

Part I.—Composition and Functions of the French Senate.

The French Senate is the creation of the National Assembly, which body, elected in 1871, voted in 1875 a series of laws which form the basis of the present constitution. The law organizing the Senate bears the date of the 24th February, 1875. It provided for the creation of a Chamber to consist of 300 members, of whom seventy-five were to be nominated by the National Assembly for life. The remaining 225 were to be elected by the departments and certain colonies, the number of senators to be allotted to each being exactly laid down; seven seats were given to Algeria and the colonies.

2. The members of the Senate are elected for nine years, "au scrutin de liste" (the system by which each elector in the department is entitled to vote for as many candidates as there are seats to fill); a third part of the Senate has to be renewed every three years. A candidate for election must be 40 years of age, and in full enjoyment of civil and political rights.

3. Senators are elected by an Electoral College, meeting in the chief town of the department or colony, and composed of (*a*) the parliamentary deputies; (*b*) the members of the Departmental Council ("Conseil Général"); (*c*) members of the District Councils ("Conseils d'Arrondissement"); (*d*) delegates elected from among the electors of the Commune by each Municipal Council.

4. The Electoral College is thus composed of "electors by right" and "elected electors." The term "municipal council" in France applies equally to rural and to urban districts, the whole country being mapped out into communes each with its municipal council.

5. A modification in the position of the Senate was effected in 1884, after considerable agitation and discussion between political parties on the question of a reform of the Second chamber. By the constitution the Chamber of Deputies had no means of obliging the Senate to join it in congress, and so to form a National Assembly by which alone a change could constitutionally be effected. The constitution establishes that: "The Chambers have the right by separate deliberations, passed in each House by an absolute majority of votes, either on their own initiative or on that of the President of the Republic, to declare the necessity of revising the constitutional laws. After each chamber shall have passed this resolution, they shall meet as a National Assembly to proceed to this revision."

6. The reform of the Senate, undertaken in 1884 by the Ministry of M. Jules Ferry, had thus to be accomplished with the consent of that body. After considerable negotiations the Senate finally agreed to meet the Chamber in congress in order to discuss the question of reform, but on the understanding that its rights over financial questions should not be subjected to discussion. The Chamber, at the instance of the Prime Minister, accepted this arrangement, and the two Houses met as a National Assembly. The result was certain changes in the constitutional law respecting the composition and election of the Senate, the most important of which was the abandonment of the system of nominated life senators. According to the original constitution, the vacancies which occurred among the seventy-five senators nominated by the National Assembly in 1875 were to be filled by the Senate itself. It was decided in 1884 that henceforth the entire Senate should be an elected body; the existing life senators retained their seats, but at their death they were to be given by lot to certain departments to which it was agreed to assign extra seats. The Electoral Colleges were constituted in the same manner as before, except that the number of the delegates of the municipal councils was increased in proportion to the population of the communes. Hitherto each municipal council named one delegate to the Electoral College; it was provided that henceforward municipal councils composed of ten members should elect one delegate, those of twelve members two delegates, those of sixteen members three delegates, those of twenty-one members six delegates, up to councils of thirty-six members and over, which would elect twenty-four delegates. The Paris Municipal Council with its eight members was, however, placed on a special footing, and given thirty delegates to the Electoral College.

7. The 300 senatorial seats were distributed in the following manner (article 2, law of the 9th December, 1884): 10 seats were given to one department (Seine), 8 seats to one department (Nord), 5 seats to ten departments, 4 seats to twelve departments, 3 seats to fifty-two departments, 2 seats to ten departments. The territory of Belfort (Haut-Rhin), the three departments of Algeria, and the four colonies of Martinique, Guadeloupe, Réunion, and French India were each given one seat.

8. The legislative power is exercised equally by the Senate and the Chamber of Deputies; the former has, however, certain special attributes which will be mentioned later on. The Executive and the Legislative have both the right of introducing Bills; those emanating from the Executive are styled "Projets de loi," and those from either Chamber "Propositions de loi." Bills can be voted first by the Senate or the Chamber indifferently, except in the case of financial measures, with regard to which it is laid down in the constitution that "all financial legislation shall be in the first instance submitted to the Chamber of Deputies and voted by it." There is apparently nothing in the constitution which prescribes for the Senate a position of legislative inferiority to the Chamber, unless the above stipulation be so regarded.

9. In the absence of any precise means of settling constitutionally any disagreement between the Senate and the Chamber, Rules of Procedure bearing on the

matter have been drawn up by each House. There is a slight difference in these rules, which are here given:—

"(A.) *Senate.—Rules of Procedure ("Règlement").*

"Article 130. When a Bill voted by the Senate has been modified by the Chamber of Deputies, the Senate may either deliberate again on the Bill or submit it to the 'bureaux' of the House, or send it back to the committee which has already considered it. The Senate may also, on the proposal of one of its members, determine that a committee be appointed to confer with a committee of the Chamber of Deputies with the object of agreeing on a text.

"Article 131. If the two committees come to an agreement, the Senate committee reports to that body, which takes the new text into consideration.

"If the Senate refuses to accept the proposal for a conference, the Bill may not be again placed on the order of the day until two months have elapsed, except on the initiative of the Government.

"The same will occur in cases where the committee of the two chambers fail to agree, or if the Senate persists in its original resolution."

"(B.) *Chamber of Deputies.—Rules of Procedure.*

"Article 144. When a Bill voted by the Chamber of Deputies has been modified by the Senate, the Chamber of Deputies may determine, on the approval of one of its members, that a committee be appointed to meet a committee from the Senate with the object of agreeing upon a text.

"The Chamber shall decide if powers to this effect shall be conferred on the committee which has already reported on the Bill, or on a new committee elected from among the 'bureaux' of the House.

"Article 145. If the two committees agree on a text, the committee named by the Chamber of Deputies reports to that Assembly, which thereupon deliberates again on the matter.

"Article 146. If the Chamber of Deputies refuses to agree to the proposal for a conference, the Bill may not be again placed on the order of the day until two months have elapsed, except on the initiative of the Government. The same will occur in cases where the two committees fail to agree on a text, or if the Chamber persist in its original resolution."

10. The Senate cannot be dissolved, whereas the Chamber of Deputies may be before the legal expiration of its mandate by the President of the Republic, but only with the previous consent of the Senate. It thus happens that, in a case of conflict between the two chambers and a deadlock resulting, an appeal to the country as a way out of it cannot be made unless the Senate gives its consent.

11. The Senate possesses also judicial functions. It may be constituted as a High Court of Justice to try the President of the Republic or the Ministers; to take cognizance of attempts or conspiracies against the safety of the State, and to try the persons implicated.

12. The sessions of both Chambers must begin and end at the same time, except that the Senate may meet—

(*a.*) If the Chamber of Deputies is dissolved at a moment when the Presidency of the Republic becomes vacant;

(*b.*) When the Senate is constituted as a High Court of Justice.

13. The Senate and the Chamber of Deputies must give their consent before the President of the Republic may declare war. The same applies, with certain reservations, to a declaration of a state of siege.

14. The following passage from the Constitutional Law of 1875 applies to the treaty-making power in France:—

> "The President of the Republic negotiates and ratifies treaties, but he must inform the Chambers of such treaties as soon as the interest and safety of the State permits. Treaties of peace and commerce, those engaging the finances of the State, or relating to the personal status or rights of property of French citizens abroad, are not definitive until they have been passed by the two Chambers. No cession, exchange or increase of territory can take place except by virtue of a law."

15. While the President of the Republic may grant individual pardons by decree, he may not proclaim an amnesty unless the Senate and Chamber approve.

Part II.—Control of the Senate over Public Finances.

1. Article 8 of the Constitutional Law of the 24th February, 1875, states: "The Senate has, equally with the Chamber of Deputies, the right of proposing and making laws. But financial measures must in the first instance be submitted to, and voted by, the Chamber of Deputies."

2. The interpretation of this article has occasioned numerous disagreements between the two Chambers, which have only been settled by the exercise of moderation and a spirit of conciliation. The question arose immediately after the new regime was established in connection with the first Budget presented to Parliament. It was then seen that the rights of the Senate might become a subject of controversy with the other House. Questions were raised as to how the Senate's right of introducing legislation was to be harmonized with the stipulation as regards finance made in favour of the Chamber by the Constitutional Law. Was there merely a right of priority? Had the Senate the right of replacing in the Budget credits disallowed by the other Chamber? If such a course were permissible, and if the Chamber of Deputies persisted in its original resolution, how was the difference of opinion to be settled? If a financial law were promulgated after the amendments made in it by the Senate had been definitively rejected by the Chamber, the Senate might rightly protest that the constitution had been violated, seeing that it was therein laid down that both Chambers must vote a law before it was promulgated.

3. It may be said that in theory the exact rights of the Senate have never been settled. It has been asserted that the question is settled in practice by what has been called "the system of the last word," which must rest with the Chamber of Deputies. But is, perhaps, more accurate to say that disagreements between the two Houses on financial matters have usually been arranged by a compromise on the actual questions at issue, without the principle being made the subject of conflict, and that when the Senate has yielded it has been under the express understanding that its full rights in financial matters are reserved.

4. The manner in which this important question of constitutional right is regarded in France may possibly be best shown by some quotations from the speeches of leading public men at different times when the rights of the Senate in financial matters have been challenged.

5. In 1876, the Senate having voted an increase of credit over and above that sanctioned by the Chamber, M. Gambetta, president of the Budget Committee of the latter Assembly, made the following declaration: "It is our view that, in accordance with article 8" (of the Constitutional Law), "when the Government has submitted to you a financial proposal, and if this proposal is rejected by you, nothing remains of it when the Budget is sent to the Senate. To hold another view is tantamount to suggesting that the Senate has an initiative of its own. A financial proposal made by

the Minister of Finance to the Chamber only receives a legal existence when you have approved it. If it be not brought into legal existence by your action, it is nothing more than a piece of paper. If the Upper Chamber has no right of initiative in such matters, it follows that it may only examine and vote a credit after such credit has been voted by the Chamber of Deputies. Whence can the Senate derive its right of initiative? Neither from article 8 nor from precedent. It can only be found in its own will."

6. The Prime Minister, M. Jules Simon, answered M. Gambetta in these words: "The question is this: Has the Senate the right of examining credits voted by the Chamber—to reject some and to replace others? It is the meaning and not the validity of article 8 which is at issue. I find this article perfectly clear. It states that financial laws must in the first instance be submitted to, and voted by, the Chamber of Deputies. It follows that in the second place they must be submitted to, and voted by the Senate. Where is the difficulty? You may say it lies in the word 'voted,' But this expression is clear. The Senate must vote as the Chamber votes. . . . I have heard it said that this means that the Senate will thus have the initiative in matters of expenditure, and that it can therefore dispose of the taxpayers' money. No; that is not so. The Senate has the right of replacing credits in the Budget, but in so doing it does not oblige an expenditure to be made. When the Senate has passed a vote, what have you before you? A proposal on the part of the Senate; it is not a law until you have approved it."

7. In 1881 the Cabinet of M. Gambetta expressed the following views with regard to the control of the Senate over financial matters in the preface to its proposal for constitutional revision: "It must be clearly laid down, beyond all possibility of discussion, that when the Chamber of Deputies has shown its intentions with regard to the Budget, the Senate has the right of making remonstrances to the Chamber, to point out that this or that tax, this or that credit or suppression of credit, is unjust or inopportune, or to suggest a modification of the whole of the Budget. But the right of the Senate ends there. The Chamber of Deputies must have the last word, and its decision must be final.

8. The proposal made in 1881 for constitutional revision was not carried into effect, and the two Chambers found themselves again in disagreement respecting the Budget of 1883. The Senate voted considerably increased credits on some heads, and reduced them on others. The Chamber accepted the reductions and rejected the increases, and the Senate thereupon voted the Budget; but the reporter of the Budget Committee, in recommending its adoption, read a declaration protesting against any attempts on the part of the other Chamber to interfere with the rights of the Senate, and recording again the prerogatives of the latter in financial matters.

9. The question was raised once more in connection with the Budget of 1885, in which the Senate had introduced a large increase of credit. M. Jules Roche, the reporter of the Budget Committee of the Chamber of Deputies, made a speech at the sitting of the 7th March, 1885, showing that the last word in financial measures must remain with hte Chamber. He states that the Senate had the constitutional right of discussing, approving or disapproving the decisions of the Chamber, and consequently of provoking a second consideration of the matter on the part of that Assembly. The Senate, however, had in no way the right of initiative, nor the last word in the case of the suppression or diminution of credits, which were the essential attributes of the Chamber of Deputies directly elected by universal suffrage. It was essential, if the national sovereignty were to be properly exercised, that, when it was a question of an increase of credit, the last word should rest with the Chamber, seeing that such a course was the natural and necessary consequence of the priority given to it in voting financial measures, and of the absence of any right of initiative on the part of the Senate.

10. The following is an extract from a speech by M. Ribot in favour of conciliation made during the debate which ensued: "The two Chambers should be allowed to

pursue their negotiations, which may frequently be laborious, but which are the necessary conditions of a parliamentary regime. An agreement will be the more easily found seeing that the constitution has rendered conciliation an every-day political necessity. It is, indeed, the basis of a parliamentary regime, and one of the inevitable conditions of the existence of two Chambers."

11. In the case of this dispute, as of previous ones, a compromise was found, and a conflict between the two Chambers on the question of principle averted.

12. A speech, made in the Senate on the 9th April, 1895, by M. Loubet, when president of the Budget Committee of that House, may also be noticed as bearing on the question. He said: "The Chamber of Deputies has, by the terms of the constitution, the initiative of financial laws. We, like you, are concerned in preserving for the Senate all its prerogatives, but the very fact of this should make us scrupulous in respecting the special prerogative of the Chamber of Deputies. . . . We have the right of examining the Budget law, and we do each year with scrupulous attention. We can introduce amendments in it—now is not the moment for discussing the conditions under which this right may be exercised—but it is impossible to entertain a complete new set of Budget proposals; they must first be passed by the Chamber of Deputies before they are submitted to the Senate."

13. No disagreement respecting finance has occurred of recent years between the two Chambers of such a kind as to give rise to anything amounting to a conflict between them.

Part III.—Recent Constitutional Disputes between the two Houses.

1. There cannot be said to have been any constitutional conflict during the last ten years between the Senate and Chamber. Just before this period, however, in 1896, a serious conflict took place between the Senate and the Ministry of M. Bourgeois, which brought about the retirement of the Cabinet, in spite of the fact that it retained the confidence of the Chamber of Deputies. In this way there may be said to have been incidentally a conflict between the two Houses, but on M. Bourgeois' resignation the grounds of dispute were removed, and the matter soon dropped.

2. An account of the relations between the Senate and M. Bourgeois' Ministry may be of interest, as showing the very real power possessed by the Second Chamber when it is determined to make its will effective.

3. M. Bourgeois formed his Cabinet at the beginning of November, 1895. For the first time since the establishment of the Third Republic, a Ministry came into power which could claim to be exclusively Radical The ministerial declaration mentioned various measures which had formed part of the programme of the Radical party, among others a graduated income tax and succession duties, and workmen's pensions, while a general determination was evinced to recast the whole financial system in a more democratic spirit. No mention was made of a reform of the Senate, though a curtailment of its powers had long formed one of the measures demanded by the Radicals, as being a necessary preliminary to the full accomplishment of democratic reforms.

4. Speculation was rife from the outset as to the attitude which the Senate would take up towards the Ministry, and especially towards the financial proposals, and early in 1896 a certain hostility to the Ministry began to be apparent. The Senate persisted, in the face of the Prime Minister's expressed wishes, in adopting a proposal affecting the right of strike on the part of railway employees. This action was soon followed by an adverse vote respecting the action taken by the Minister of Justice in removing an examining magistrate ("juge d'instruction"), who was conducting an investigation into alleged scandals connected with the Southern Railway Administration. On the 11th February the Senate passed an Order of the Day, objected to by the Prime Minister, by a majority of ninety-four. The Ministry thereupon (13th February) made the question into one of confidence in the Chamber of Deputies, and obtained an approval of its general policy by 326 votes to 42. On the 15th February the

Senate replied by adopting a resolution confirming its vote of the 11th February, although M. Bourgeois had stated that the Government was absolutely opposed to it. A fresh debate took place in the Chamber of Deputies a few days later, and the Ministry again obtained a majority, this time of only forty-five votes.

5. From this moment the conflict was definitely opened, but the Senate did not yet push matters to extremities. M. Demôle read a declaration on behalf of the three Republican groups of the Senate, protesting against the attempt on the part of the Ministry to govern without taking the Senate into account. The declaration continued: "The Ministry has considered that it could appeal from one Chamber to the other. It pretends that ministerial responsibility cannot be made a question in the Senate. . . . We affirm anew our right of control, and the responsibility of Ministers to both Chambers. One answer to the words and acts of the Cabinet might have been an absolute refusal to co-operate; but the Senate does not desire to suspend the legislative life of the country or to renounce its duties, in spite of the attitude of the Ministry. It is determined to maintain all its rights and independence without other preoccupation than the interests of the country, and it intends that the Ministry shall give an account to the Senate of its proceedings. The country will decide the issue between Ministers who have not hesitated to raise so grave a crisis and an Assembly which, in the interests of the public peace, does not wish to aggravate further a constitutional conflict."

6. This declaration was approved by 175 votes to 59. The Radical organs declared that the Senate had, in fact, given in to the Cabinet, and that Assembly was charged with raising difficulties for the Government on account of its dislike of their financial proposals, which were by this time under consideration by the Chamber of Deputies.

7. On the 29th February the Prime Minister accompanied the President of the Republic on a tour in the south of France, and on several occasions manifestations in favour of M. Bourgeois took place, to which the conflict with the Senate gave especial significance. The presidential cortège was at various times greeted with cries of "A bas le Sénat!" and utterances which were held to have an offensive character towards that Chamber. Considerable indignation was shown in the Senate that such manifestations should have been tolerated under the eyes of the President of the Republic and Prime Minister, and an intention was expressed of interpellating the Government on the subject. The Minister of Commerce, however, gave some explanations as to what had occurred, and no interpellation took place. A senator remarked, "We accept your excuses," to which the Minister replied: "It is not a question of excuses, but of facts." These incidents were obviously not of a nature to improve the relations between the Senate and the Cabinet.

8. At the beginning of April the Chamber of Deputies voted supplies in connection with the military expedition in Madagascar, and adopted the unusual course of adjourning till the 19th May without previous agreement with the Senate. The latter had only voted supplies up till the 30th April, and the Chamber had arisen without waiting for the Senate to pass further ones after that date. The circumstances of the adjournment of the House were the more marked as it had taken place on the initiative of the supporters of the Ministry, and the Ministers who were deputies had voted for it. The proceeding was interpreted as a further manifestation of disregard for the other House.

9. In the meantime an interpellation had been announced in the Senate respecting foreign policy. M. Bourgeois, having failed to obtain an adjournment of the discussion, stated that he had nothing to add to his former declarations, and that the Government could not reply to the interpellation. The Senate thereupon passed by 155 votes to 85 the following resolution: "The Senate, taking note of the declaration of the Government, and judging the explanation insufficient, cannot accord them its confidence, and passes to the Order of the Day.

10. The Senate then adjourned till the 21st April without having voted the Madagascar supplies. A Cabinet Council was held, and the Government decided not to resign in consequence of the attitude of the Senate. Everything, however, pointed to the imminence of a crisis.

11. An event occurred at this juncture outside Parliament, which was universally recognized to be of great importance. The Departmental Councils ("Conseils Généraux") had been solicited to express their views on the question of the proposal of the Government for an income tax. The significance of an expression of the views held by these Assemblies, elected by universal suffrage, and themselves forming a considerable part of the electorate of the Senate, was obvious at a moment when that House and the Ministry were involved in so grave a dispute, and one which, it was freely asserted, had its predisposing cause in the antagonism felt in the Senate to the financial policy of M. Bourgeois' Cabinet.

12. Sixty Departmental Councils pronounced against the principle of the income tax; eleven accepted the principle, but with reservations which amounted to a condemnation of the Government plan; some others abstained from expressing an opinion, and only about sixteen could be said to favour it entirely.

13. On the 21st April the Senate met again. Three courses appeared to be open to it. It could either vote the supplies as they stood, or vote them with a reduction on some heading, which would have rendered it necessary to convoke the Chamber, or refuse them altogether. In the last case the Ministry would be placed in the position of being unable to carry on legally the government of the country as the expenditure concerned could not be incurred without special sanction. As soon as the Senate met, M. Demôle read a declaration in the name of the three Republican groups, to the effect that the Government had remained in power in violation of the constitutional law after the Senate had on three occasions by considerable majorities withdrawn from them its confidence. The groups in whose name he spoke did not, he said, refuse the Madagascar supplies, but they would not vote them while M. Bourgeois' Cabinet remained in power, and they accordingly proposed that the vote should be adjourned till the Senate had before it "a constitutional Ministry having the confidence of the two Chambers."

14. This declaration was approved by 168 votes against 91. The Cabinet then determined to resign, but declared that it wished the Chamber to be first convoked. The Chamber was immediately summoned, and met on the 23rd April, when the Prime Minister made a statement of the circumstances which, in the opinion of the Cabinet, rendered its resignation inevitable. The action of the Senate had, he said, rendered it impossible for the Government to obtain supplies for the French troops in Madagascar, and they resigned on the patriotic ground that no action of theirs should delay the voting of the expenditure required for the defence of French interests in Madagascar.

15. The members of the Government then withdrew from the Chamber, and the Prime Minister placed the resignation of the Cabinet in the hands of the President of the Republic. The Chamber continued a discussion amidst considerable agitation, and finally voted a resolution affirming the "preponderance of universal suffrage and the determination to pursue democratic reforms." Only 257 Members recorded their votes in favour of this resolution; 324 either abstained from voting or were absent.

16. The Senate at once voted the Madagascar supplies on learning of the resignation of the Ministry, and before a new one was constituted. The supporters of the late Ministry inside and outside of Parliament made use of threatening language respecting the Senate's proceedings, and some slight disturbance of order took place in connection with a public manifestation in Paris against the action of that Assembly.

17. A Moderate Republican Ministry, under the presidency of M. Méline, was quickly formed, and presented itself on the 30th April, to the Chamber, which then

passed a resolution by a majority of 34 affirming the sovereignty of universal suffrage, and approving the declaration of the new Government. In the debate which took place on this occasion M. Bourgeois intervened, and explained in full the course of events which had forced his Cabinet to resign. He pointed out that when a Government and the Senate were united against a majority in the Chamber, they had always the possibility of bringing about a dissolution. But this was not the case when a Government and the Chamber found themselves in opposition to the Senate. In the latter case, he asked, what resource had the Chamber? He denied that the Senate had a right to overthrow a Ministry supported by a majority in the Chamber. The Senate had only the right of examination and appeal; it could not have the right of substituting its policy for that of the Chamber by overthrowing the Ministry which represented that policy. The recent struggle was not merely one between the Senate and a Ministry; it was a conflict on a fundamental question between the two Chambers, and he declared that the question of the rights and attributes of the Senate was now definitely raised.

18. After, however, the crisis above described was ended by the appointment of a new Ministry, the question of the constitutional rights of the Senate was not pressed to an issue, and since that date no similar conflict involving the relations of the two Chambers has arisen. The reason usually ascribed to the absence of disputes between them is that the political composition of the Senate has tended during recent years to become more and more similar to that of the Chamber of Deputies.

GEORGE GRAHAME.

HESSE DARMSTADT AND BADEN.

No. 6.

Mr. Harford to Sir Edward Grey.—(Received October 28.)

DARMSTADT, October 20, 1907.

SIR,—With reference to the Foreign Office Circular of the 10th July, I have the honour to inclose reports, as requested, on the composition and functions of the Upper Chamber in the Grand Duchies of Hesse and Baden.

In both these States, the Upper Chamber is styled the First Chamber in the constitution on which each is respectively based.

As the constitutional struggles which have taken place in South Germany during recent years for electoral reforms are so closely connected with the revision of the powers and composition of the Upper Chambers in those States, some allusion to this subject was hardly to be avoided. Everywhere, except in Hesse, more Liberal ideas have triumphed, and the system of election to the Diet or Landtag is now, with that one exception, everywhere closely assimilated to the system for election to the Reichstag.

The three Bills now before the Hessian Chambers form the third attempt in recent years to revise the constitution on the lines of the reforms already adopted by Baden, Bavaria and Würtemburg.

I have, etc.,

FREDERIC D. HARFORD.

Inclosure in No. 6.

REPORT ON THE GRAND DUCHY OF HESSE DARMSTADT.

Upper Chamber based on the Constitution of 1820.

The present composition and functions of the Upper or First Chamber in the Grand Duchy of Hesse are defined by the constitution of the Grand Duchy of Hesse promulgated on the 17th December, 1820, and by the Hessian Electoral law of the 8th November, 1872, and the law of the 17th June, 1875, governing the procedure of the Hessian diet, but, speaking generally, the British parliamentary system is the basis of the relations of the Upper and Lower Chambers.

Bill to revise Constitution before the Diet.

A Bill was introduced by the Government into the Hessian Diet on the 29th April, 1907, to alter the electoral system in conjunction with an alteration of certain prescriptions of the Constitution. On two former occasions, as, for example, in 1905, Bills have been introduced for a reform of the electoral system, but were not adopted owing to divergencies of opinion between both Chambers as to their existing constitutional rights in enacting laws and in fixing the Budget. Otherwise no important differences of opinion, especially as regards constitutional questions, have so far arisen between the two chambers.

Bill proposes to increase Powers of Upper Chamber.

The Government proposals of the 29th April, 1907, alluded to above, comprise the following three Bills: Bill (1) proposes alterations in articles 67 and 75 of the constitution, with a view, firstly, to allowing the Upper Chamber to discuss the Budget independently, and to accept or reject it *en bloc,* or in detail; and secondly, that if one of the Chambers rejects a Bill, the Bill shall remain adjourned, and then if it is submitted by the Government to the next Diet, and is again rejected by one of the Chambers, but is adopted by one of the Chambers, the Government can summon both Chambers to discuss the measure jointly under the presidency of the President of the Upper Chamber, and if a two-thirds majority is obtained the Bill becomes law. In the case of a disagreement between the two Chambers on some single item included in the Budget law, the lower amount voted by either of the Chambers is considered as adopted. In case of a dispute over the whole Budget, the Government could convene a meeting of the two Chambers, and the absolute majority would decide.

New Elective Members proposed to be added to Upper Chamber.

Bill (2) proposes to add to the Upper House a representative of the Technical High School at Darmstadt, to be summoned by the Grand Duke on the proposal of the Council of that institution, and also two representatives of trade and industry, two representatives of agriculture, and one of handicraft, to be summoned by the Grand Duke on the proposal of the legally constituted bodies connected with those professions. These six new members would thus be added to the Upper Chamber by special elective process. (The existing Upper Chamber consists of thirty-four members.)

It is further proposed that if one of the mediatized families dies out the Grand Duke shall, on the recommendation of the heads of the existing mediatized families, appoint for life a member of one of those families, so that the vote may not be lost.

Electoral Reform: Basis of Compromise for conceding New Powers to Upper Chamber.

In the same Bill is found the compromise offered in return for the larger powers proposed to be given to the Upper Chamber, namely, that in place of the present system of indirect election to the Lower Chamber, by means of electing delegates who again elect the deputies, the system of direct election is to be substituted. The system of voting by secret ballot already exists.

Lower Chamber to be increased by eight Members.

Bill (3) is namely a Redistribution Bill, and proposes to add eight members to the Lower Chamber, which now consists of fifty members. Of the eight new members five would be members for town constituencies, and three for country constituencies.

These three Bills are being studied by committees of the two Chambers, and as a large part of next year's spring session will be taken up in discussing the Budget, the time available during the spring and autumn sessions of 1908, for adequate discussion of so important and thorny a subject, is barely sufficient to allow of an agreement between the two Chambers being reached by the latter part of 1908, that is to say, before the close of the present Diet, unless some mutual concessions are made. The result would be that the attempted revision of the Hessian constitution would once again have proved abortive.

Present Composition of Upper Chamber.

In the Grand Duchy of Hesse the Upper or First Chamber, as it is called, is at present composed:—

1. Of the Princes of the Grand Ducal House.
2. Of the heads of mediatized families who own one or more entailed estates in the Grand Duchy.
3. Of the head of the Baron von Riedesel family.
4. Of the Catholic Bishop of the State, or, in case of impediment, of a Catholic priest named by the bishop with the consent of the Grand Duke for the duration of the Diet.
5. Of a Protestant clergyman, named by the Grand Duke for life with the rank of a prelate. In case of a vacancy or of any impediment, the Grand Duke can name another Protestant clergyman in his place for the duration of the Diet.
6. Of the Chancellor of the University of Giessen, or, if his place is vacant or in case of impediment, a member of the Academical Senate of the University named by the Grand Duke for the duration of the Diet.
7. Of two members of the nobility elected by members of the domiciled nobility who own sufficient real estate to be entitled to vote. They are elected for six years.
8. Of distinguished Burgers of the State, who may be summoned for life by the Grand Duke, not exceeding twelve.

Members cannot Vote in Elections.

Members of the Upper Chamber cannot exercise the suffrage, and must have completed their 25th year before they can exercise their privileges, and then only if no rights of the State stand in the way, and they cannot be elected to the Lower or Second Chamber, as it is styled in Hesse, nor can they vote in elections for the Lower Chamber.

President appointed by the Grand Duke.

The President of the Upper Chamber is appointed by the Grand Duke for the duration of the Diet; the Upper Chamber then elects its second and third presidents and two secretaries.

Number which constitutes quorum.

At least twelve members must vote in the Upper Chamber to validate a vote, but if this quorum is not present the vote is considered as carried; but this is not allowed in the case of a proposal to revise the constitution.

Majority needed to revise Constitution.

Alterations and additions to the constitution can only take place with the consent of both Chambers, and for this purpose at least twelve of the Upper Chamber must vote in favour of any such change; but if the number of members taking part in the voting is so large that two-thirds of this number exceeds twelve, then two-thirds majority is necessary.

Budget proposals first submitted to Lower Chamber.

Article 67 of the constitution lays down that the Budget law must be first submitted to the Lower Chamber, which arrives at its decision after a previous confidential discussion with the Upper Chamber by means of the Finance Committees. The Upper Chamber can only accept or reject the financial proposals of the Lower Chamber *en bloc*. If the Upper Chamber rejects the proposals the Budget Bill is discussed in a sitting of both Chambers together, under the presidency of the President of the Upper Chamber, and a decision is taken by the absolute majority.

Introduction of Bills.

Government Bills are submitted to the Chambers or to that which has to deliberate on them, either by members of the Ministries or by special Commissioners of the Diet, or in writing; but every member of the Diet, and therefore of the Upper Chamber, has the right to bring forward motions or interpellations in the Chamber to which he belongs. Bills must be presented by at least ten members.

Rejected Bills.

Proposals which have been rejected by either Chamber, whether emanating from the other Chamber or from a member of the Chamber itself, cannot be reintroduced during the duration of the same Diet.

Appointment of Committees.

Each Chamber elects four permanent committees, one of which deals with the budget, the public debt, and other financial proposals, but other special committees can be appointed by either Chamber.

REPORT ON THE GRAND DUCHY OF BADEN.

Upper Chamber based on Constitution of 1818, as revised in 1904.

The constitution of the Grand Duchy of Baden promulgated on the 22nd August, 1818, was considerably modified by the Baden law of the 24th August, 1904, on which date a new electoral law was promulgated, which also defines the manner in which the elective members of the Upper Chamber (called the First Chamber) are to be elected, as well as those of the Lower or Second Chamber. These measures marked the termination of a long struggle for the direct as opposed to the indirect system of voting, which still obtains in the Grand Duchy of Hesse. Similar measures of electoral reform have also been adopted in Bavaria and Würtemberg in recent years. No constitutional disputes have, however, arisen between the two Chambers of the Baden Diet during the past ten years.

Composition of Upper Chamber.

Under the revised Baden constitution the Upper Chamber consists of:—

1. The Princes of the Grand Ducal House.
2. The heads of the mediatized families who own estates in Baden on attaining the age of 21.
3. The Catholic Bishop and Evangelical Prelate.
4. Eight members elected by the landed nobility.
5. A representative for each of the Universities of Heidelberg and Freiburg, and for the Karlsruhe Technical High School.
6. Six representatives elected by legally organized corporations, namely, three by the Chambers of Commerce, two by the Chamber of Agriculture, and one by the Chambers of Handicraftsmen.
7. Two mayors of the larger cities, a mayor of one of the smaller towns, but exceeding 3,000 inhabitants, and a member of a District Council.
8. Members appointed by the Grand Duke. Of those two must be high judicial authorities, while for the others (not exceeding six) there is no restriction as regards profession or birth.

At the time of the revision of 1904 there were forty members of the Upper Chamber, of whom twenty-one were elected.

Grand Duke can create new Hereditary Members.

The Grand Duke can create as hereditary members of the Upper Chamber the heads of noble families who own real estates and a family seat in Baden of the net value of 50,000*l.*, but if the qualification ceases to exist, the right to the hereditary seat in the Upper Chamber ceases also.

Guardian or Relative can Vote on behalf of Minors or Absentees.

The guardian of a minor or lunatic mediatized member of the Chamber can, if he is a relative, sit in his place in the Chamber, and if the head of a mediatized family is unable for other reasons than the above to attend a session he can nominate a relative in his place for that period.

Duration of Appointment of Elective Members.

The two high judicial authorities are appointed for the duration of their office, the other members appointed by the Grand Duke, and the other elective members hold office for the duration of the Diet, that is, for four years.

A Member cannot sit in both Chambers.

A member of the Lower Chamber cannot enter the Upper Chamber, and if a member of the Upper Chamber accepts election to the Lower Chamber he ceases to belong to the Upper Chamber.

Validity of Elections decided by the Chamber concerned.

Each Chamber decides as to the validity of its own elections.

Appointment of President.

The Grand Duke appoints the President of the Upper Chamber.

Measures which must first be submitted to Lower Chamber.

Article 60 of the constitution, as amended by the law of the 24th August, 1904, thus defines the Bills or measures which must first be submitted to the Lower Chamber in Baden:—

The following Bills are presented first to the Lower Chamber:—

"1. Reports as to Budget revenue or expenditure, and comparative statements showing Budget Estimates and actual receipts.

"2. Bills which deal with permanent arrangements respecting the administration of the State revenue and expenditure, or with direct or indirect taxation.

"3. The Finance Bill, together with the Budget Estimates, as well as other Bills fixing taxation for a Budget period, or for the sale, mortgage, or application of the State property or domains, the contracting of loans, the acceptance of State citizenship, or other State obligations of a similar nature."

Procedure followed in dealing with Finance Bills, etc.

The procedure to be followed in the case of the above three categories is thus laid down in article 61 of the constitution, as amended by the law of the 24th August, 1904:—

"1. The measures described in section 1 of article 60 are discussed in the Upper Chamber after the Lower Chamber has voted them.

"2. The Bills described in sections 2 and 3 of article 60 are only voted on in the Upper Chamber after they have been adopted by the Lower Chamber, without prejudice to the right of the Upper Chamber to vote on the different items of the Budget proposals separately, as soon as they have been voted by the Lower Chamber.

"3. If the votes of the Upper Chamber with respect to the various items of the Budget Estimates differ from those of the Lower Chamber, and if after the repeated votes of both Chambers, and a previous attempt to arrive at an understanding in accordance with article 75, section 2, a compromise of the differences cannot be arrived at, these items will be inserted in the Budget proposals annexed to the Finance Bill in the form decided on by the Lower Chamber at its final vote.

"4. If the Upper Chamber rejects altogether a Bill of the nature described in article 60, section 3 which has been adopted by the Lower Chamber, then, at the request of the Government or of the Lower Chamber, a vote will be taken in the matter on account of the total votes given in both Chambers, whether the Bill is to be adopted in the form proposed by the Lower Chamber."

Quorum needed for passing Finance Bills, &c.

In subsequent articles 71, 72, and 74 of the constitution, it is explained that a quorum of both Chambers must vote in such cases, and that if the number of votes for and against are equal, the President of the Lower Chamber has a casting vote, in other words, his vote counts twice.

Majority needed to change Constitution.

Article 64 of the constitution declares that no law amplifying, defining, or altering the constitution can be adopted except by a majority of two-thirds of the members of the Diet who may be present at each of the two Chambers. In article 73 it is added that three-quarters of the members of both Chambers must take part in the vote.

And in cases affecting freedom of Persons.

Article 65 declares that the vote of the absolute majority of each of the two Chambers is necessary in all new laws of the country which affect the freedom of the person or the property of subjects of the State generally, or alter or define existing laws of that nature.

Right to initiate Legislation.

Article 65A declares that either Chamber, as well as the Grand Duke, has the right to initiate legislation.

Power to Appeal to the Grand Duke.

Article 67 empowers the Upper Chamber to address a complaint to the Grand Duke in case of any prejudice to its constitutional rights, but complaints respecting other constitutional rights can only be dealt with by the Lower Chamber. Representations to the Grand Duke on other matters may be made by either Chamber, jointly or separately. A request for the introduction of a Bill may be only addressed to the Grand Duke by a Chamber, if the request has been previously communicated to the other Chamber, and the latter has had an opportunity of expressing an opinion thereon.

Rejection of Bills.

Bills can be accepted or rejected by either Chamber, and a Bill or proposal introduced from one Chamber to the other can be returned to the other Chamber with amendments.

Quorum needed in Upper Chamber.

The Upper Chamber requires fifteen members present to constitute a quorum.

Committees of both Chambers can confer together in case of Disagreement.

Article 75, section 2, stipulates that if the votes of both Chambers differ from one another, a meeting of the committees of both Chambers may take place with a view to arriving at an understanding on the initiative of either Chamber by the intermediary of the president. Each Chamber restricts itself in its relation to the other to the mutual communication of their votes.

Ministers can attend all Sittings.

The Ministers and certain other officials have access to all public and private sittings of the Chambers, and must be heard when they desire it.

HUNGARY.

No. 7.

Consul-General Clarke to Sir E. Goschen.—(Received at Foreign Office, August 31.)

BUDA-PESTH, August 27, 1907.

SIR,—I have the honour to inclose herewith a report which I have drawn up on the composition, functions, etc., of the Hungarian Second or Upper Chamber (House of Magnates).

I have, etc.,

F. S. CLARKE.

Inclosure in No. 7.

REPORT ON THE HUNGARIAN SECOND OR UPPER CHAMBER (HOUSE OF MAGNATES).

The Hungarian Upper Chamber or House of Magnates, was reorganized in the year 1885. It is now composed:—

(*a.*) Of hereditary members;
(*b.*) Of members who sit by right of office or dignity;
(*c.*) Of those who sit by right of Royal appointment; and
(*d.*) Of those who sit by virtue of election.

The hereditary members are the Archdukes of the reigning House (who have attained their majority); the male members of Hungarian families having the title of Prince, Count, or Baron who are 24 years old, who enjoy the rights of majority, and who are the usufructuary possessors (by themselves, or in conjunction with their wives or their legitimate children living under their roof) of landed property within the territory of the Hungarian state, paying, in accordance with the cadastral survey of 1885, an annual tax of at least 6,000 crowns (£250), such tax including that levied on dwelling-houses, farm buildings, etc.

Persons on whom new titles are conferred only have the right to sit in the Upper House if the King specially grants them such privilege. The members who sit by right of office or dignity are:—

1. The Bannerets of the Crown ("Regni Barones"), the Count of Pressburg,[1] the two custodians of the Crown, the Governor of Fiume, the Presidents and Vice-Presidents of the High Court of Justice and of the High Court of Administrative Matters respectively, and the President of the Buda-Pesth Court of Appeal.

2. The Hungarian Prelates of the Roman Catholic Church (Latin and Greek rites), that is, the Primate, the Archbishops, the Diocesan Bishops, the two consecrated Bishops of Nandor-Fejérár and Tinnin (appointed by the King), the Grand Abbott of Pannonhalma, the Provost of Taszo, and the Prior of Aurania.

3. The Prelates of the Greek Orthodox Church—that is, the Servian Patriarch and the Roumanian Metropolitan, as well as their Suffragan Bishops.

4. The three Bishops (who have held office longest) and three lay dignitaries of the two Protestant Evangelical Churches, and the senior Head. Bishop, or layman of the Unitarian Church.

The members who sit by right of Royal appointment are the life members, whose number cannot exceed fifty, and more than five of whom cannot be appointed by the King in one and the same year. The members who sit by virtue of election are the representatives of former members of the House of Magnates excluded in consequence of the reorganization effected in 1885. The number of these representatives, which was originally fifty, is gradually decreasing, the vacancies as they occur not being filled up. The Diet of Croatia-Slavonia also sends three delegates to the House of Magnates.

The right to sit in the Upper Chamber is not affected by the fact that a member thereof is serving in the army or is fulfilling ecclesiastical or civil duties. Exceptions to this rule are, however, made in the cases of the president and of the functionaries of the Court of Accounts. Naturalized Hungarian citizens can only become members of the House of Magnates ten years after naturalization. The members of the Upper House lose their right to sit:—

[1] A dignity hereditary in the Pálffy family.

1. If, sitting there in virtue of office or dignity, they cease to fill such office or such dignity.

2. If, having been appointed, or elected, they resign.

3. If, being the delegates of Croatia-Salvonia, their mandates have expired.

4. If they have been condemned by a regular tribunal to prison or banishment for a crime or for an offence committed for "lucre."

5. If they lose their Hungarian nationality.

The right to sit may, in some instances, be not altogether lost, but only temporarily suspended. Such is the case in condemnations involving suspension of political rights, in cases of bankruptcy, and in those of being placed under guardianship ("sous curatelle."). In this last case, however, exception is made when "spendthrift habits" or "absence abroad" has led to the restrictive measure in question. Hereditary members, again, who cannot comply with the necessary conditions as to payment of taxes have their rights suspended from the time of the expiration of the session during which the non-compliance took place. A magnate may be elected as a deputy, losing, while representing an electorate, his right to sit in the Upper House.

Cabinet Ministers have seats in both Houses of Parliament, and may therefore make declarations in either Chamber. They can, however, only vote in the Upper Chamber if they are members thereof and are not deputies. Cabinet Ministers may be represented at sittings of the House of Magnates by proxies (usually by their Parliamentary Under-Secretaries of State) if notice thereof is given beforehand to the President of the House.

The two Houses of Parliament hold their sittings separately, communicating to each other in writing the resolutions come to. The members of the House of Magnates (like the deputies) have the right of immunity. The resolutions come to in the Upper House are only valid if at least fifty members have been present. (In the Lower Chamber the number of deputies must be at least 100.) The initiative with regard to legislation belongs to both Houses, but by the Law of Reorganization (1885) the custom by which Bills are always first introduced into the Chamber of Deputies remains in force for the present. Bills rejected by the Lower Chamber cannot be again discussed by that Chamber during the same session, but Bills thrown out by the Upper Chamber can again form the subject of debate in the Lower Chamber, and can again be sent up to the House of Magnates. Although the members of the two chambers do not meet together for the adoption of legislative measures, they do so for the election of a Palatine or of a Custodian of the Crown ("Kronhüter"), and it is before such common assembly and in the presence of His Majesty the King that the dignitaries elected have to take the oath of fealty. The opening and closing of Parliament, as well as the act of coronation itself, have all to take place in the presence of the members of both Houses.

Functions of the House of Magnates.

The functions of this House are of a legislative character. All Bills, including those referring to financial matters, such as budgets, loans, etc., must, after passing the Lower Chamber, be submitted to the Upper Chamber. When voted, the Bills are laid before the King for the Royal sanction.

The functions of the House of Magnates are also of a judicial character, and extend over certain disciplinary matters with regard to higher judicial functionaries, such as the Presidents and Vice-Presidents of the Courts of Appeal, the President, Vice-President, and Judges of the High Court of Justice, and the Crown Attorney-General ("Kronanwalt"). The tribunal before which these functionaries are tried

consists of thirty-six members, half of whom are elected by the House of Magnates (from amongst its members) and half of whom are composed of the Vice-Presidents and Judges of the High Court of Justice. Only twelve (exclusive of the president) of these members form the tribunal.

A law passed in 1896 for the formation of a High Court for administrative Affairs ("Verwaltungsgerichtshof") prescribes that, in cases of disciplinary matters (in which the judges of that court are concerned), the tribunal before which the trial takes place has to be composed of twenty-four members, half of whom are magnates and half are judges of the Court of Administrative Affairs. Eight members of this tribunal (exclusive of the president) have to sit at the hearing of a case.

Although the impeachment of Cabinet Ministers has to be voted by the Chamber of Deputies, yet the tribunal before which such Ministers must appear is composed solely of members of the Upper House. This latter House elects for the purpose (by secret ballot) thirty-six magnates, twelve of whom can be challenged by the Commissioners (charged by the Chamber of Deputies with the conduct of the proceedings) and twelve by the Ministers impeached. The remaining twelve then constitute the Tribunal.

The control of the public finances is vested in the Chief Accountant's Office ("Staatsrechnungshof"), which has almost complete independence of action. The different departments of State have annually to submit to it their accounts accompanied by vouchers. In the event of there being objections to any items of expenditure, the Office sends an inquiry paper to the Minister concerned. The final accounts are every year laid before both Houses of Parliament, and Ministers can be asked for explanations, and can be made responsible in either Chamber for defraudation or for illegal use of moneys. (The impeachment of Ministers can, however, as already stated, only be voted by the Chamber of Deputies).

During the last ten years no constitutional disputes have arisen in Hungary between the two Houses of Parliament.

F. S. CLARKE.

BUDA-PESTH, August 27, 1907.

ITALY

No. 8.

Mr. des Graz to Sir Edward Grey.—(Received August 9).

ROME, August 6, 1907.

SIR,—In accordance with the instructions contained in your Circular despatch of the 10th ultimo, I have the honour to transmit herewith a report on the composition and functions of the Italian Senate.

I have, etc.,

C. DES GRAZ.

Inclosure in No. 8.

REPORT ON THE COMPOSITION AND FUNCTIONS OF THE ITALIAN SENATE.

The Constitution.

The "Statuto," or constitution, granted by King Charles Albert of Sardinia to his subjects in 1848 was gradually extended to the other parts of Italy, and is now the constitution of the whole kingdom.

Composition of the Senate.

The Senate is composed of members appointed for life by the King on the proposition of his Ministers. The number of Senators is not limited. They must be over 40 years of age, and must belong to one or other of twenty-one categories enumerated in the "statuo":—

1. Archbishops and Bishops. No Senators have been appointed under this category since 1866.

2. The President of the Chamber of Deputies.

3. Deputies after three Parliaments or six years discharge of their duties. Parliament is elected for a period of five years.

4. Persons having the rank of Minister of State.

5. Ministers-Secretaries of State.

6. Ambassadors.

7. Envoys Extraordinary after three years' service.

8. The President of the Supreme Court of Justice and the presidents of its several divisions.

The President of the Court of Audit of State Accounts ("Camera dei Conti") and the Presidents of its various sections.

The President of the Council of State and the presidents of its several Departments are now also included in this category.

9. The Presidents of the Courts of Appeal.

10. The Advocate-General and the Crown Prosecutor of the Supreme Court of Justice after five years' service.

11. The Presidents of the divisions of the Courts of Appeal after three years' service.

12. Councillors of the Supreme Court of Justice and of the Court of Audit after five years' service.

13. The Advocates-General and Prosecutors-General of the Courts of Appeal after five years' service.

14. General officers of the army and navy. Major-Generals and Rear-Admirals must have had five years' active service in that rank.

15. Councillors of State of five years' standing.

16. Members of the Councils of the Provinces after their third election as President of their Council.

17. Intendants-General. This is now interpreted to mean prefects and ex-prefects.

18. Members of the Royal Academy of Sciences after seven years' membership. This qualification now applies equally to seven other distinguished scientific and literary societies throughout the kingdom.

19. Ordinary members of the Superior Council of Education after seven years' service.

20. Persons who by their eminent services or merits have added to the country's fame.

21. Persons who have for the last three years paid a sum equivalent to £120 in direct taxes in respect of their property or in income tax.

Princes of the Royal Family are senators by right, they enter the Senate at 21 and have the right to vote at 25 years of age.

The Presidents and four Vice-Presidents of the Senate are nominated by the King on the recommendation of his Ministers.

The number of Senators in March, 1907, was 341.

By the Constitution the Senate has the sole right of judging the validity of the qualifications for admission to that body. The nominations are referred to a special permanent committee of the Senate. There have been several cases in which the Senate has rejected a decree of nomination, which in consequence became inoperative.

Legislative Functions of the Senate.

According to article 3 of the constitution, the legislative power shall be collectively exercised by the King (represented by his Ministers) and the two Chambers—the Senate and the Chamber of Deputies.[1]

The two Chambers have an equal right to approve, amend, or reject Bills. When a Bill, introduced in one Chamber, is amended by the other, the Bill with the amendments is submitted afresh to the Chamber in which it was originally presented. It then returns to the amending Chamber, and this procedure is repeated when there are differences of opinion between the two houses until an agreement is reached.

There have been differences of opinion between the two Chambers, but they have never yet resulted in a conflict.

There is no provision in the "statutes" for the settlement of disputes between the Chambers.

Control of the Senate over Public Finances.

The pre-eminence of the Chamber of Deputies in the control of the public finances is recognized in article 10 of the constitution, which reads as follows:—

> "The right of proposing laws shall belong to the King or to either Chamber, but any law for the imposition of taxation or the approval of the Budgets and State accounts shall be presented first in the Chamber of Deputies."

The exact interpretation of this article, and the precise nature of the Senate's rights in dealing with financial Bills, has given rise at different times to numerous discussions, and to the expression of widely differing views in both Houses.

Whilst maintaining, subject to the limitations of article 10, its constitutional rights to amend or reject the above measures, the Senate has in practice shown great tact and moderation by making the most sparing use of those rights.

Judicial Functions of the Senate.

The Senate is invested with judicial functions in the three following cases, when it constitutes itself into a High Court of Justice:—

> Firstly, to judge of crimes and offences of which its members are accused, Senators as Supreme Judges of the State not being subject to the ordinary courts;
>
> Secondly, to judge Ministers accused by the Chamber of Deputies and brought before the Senate for trial; and
>
> Thirdly, to judge persons accused of acts of high treason and of attempts against the safety of the State.

When exercising its judicial functions, the Senate cannot concurrently exercise its legislative functions.

ROME, August 5, 1907.

[1] To become law, every Bill has to pass both Houses, and then to obtain the Royal sanction.

NETHERLANDS.

No. 9.

Sir H. Howard to Sir Edward Grey.—(Received August 6.)

THE HAGUE, July 29, 1907.

SIR,—In obedience to the instructions conveyed in your Circular despatch of the 10th instant, I have the honour to transmit herewith a report by Lord Acton upon the composition, powers, and functions of the Upper or First Chamber of the Netherland States-General, and upon its relations with the Lower or Second Chamber.

I have, &c.,

HENRY HOWARD.

Inclosure in No. 9.

REPORT BY LORD ACTON ON THE COMPOSITION AND FUNCTIONS OF THE NETHERLAND FIRST CHAMBER.

General Remarks.

The Netherland Upper House or First Chamber, in accordance, perhaps, with the spirit of Netherland history, is modelled on lines republican rather than monarchical, and bears a strong outward resemblance to the senatorial bodies of the great democracies. It is formed by process of indirect election, none of its members, with the exception of the President *(vide infra)*,[1] being appointed by the Crown. Its powers are more limited than those of the House of Lords, in that it possesses no power of amendment, nor any initiative faculty in respect of Bills proper. The prevailing tendency, however, as explained below, is to increase the powers of the Upper House by granting to it the right of amendment, and to democratize its composition by abolishing the present restrictive qualifications.

Parliamentary procedure.

According to the terms of the constitution the Legislature or States-General represent the entire Dutch nation. They are composed of a First and a Second Chamber. The legislative power is exercised jointly by the Queen and the States-General. Parliamentary procedure and the distribution of legislative power are as follows:—

The Queen submits Bills to the States-General, and also any other proposals which she may consider necessary. She has the right either to approve or to reject measures which have been adopted by the States-General. The Sovereign, on the advice of the Ministers of the Crown, sends all legislative projects to the Second (Lower) Chamber. If the latter decide to approve the measure, whether amended or unaltered, they send it up to the First Chamber. If, on the other hand, the Second Chamber decide against the adoption of the Bill, they address a request to the Queen that she should again give the matter her earnest consideration.

Powers of First Chamber.

The First Chamber deliberate upon measures in the form in which they are passed by the Second Chamber, and they communicate their decisions both to the

[1] The President is appointed from among the Members.

Queen and to the Second Chamber. Pending the decision of the First Chamber in regard to a Bill, the Sovereign retains the power to withdraw the Bill submitted by her. The States-General have the right to submit Bills to the Queen; the right of initiative can, however, alone be exercised by the Second Chamber, which sends the Bill when passed to the First Chamber, and has the power to intrust one or more of its members with the duty of defending the Bill, either verbally or in writing, in the First Chamber. If the First Chamber approve the measure, they apply for the Sovereign's sanction and inform the Second Chamber accordingly; if they fail to pass the Bill, they return it to the Second Chamber with an intimation that they have not found sufficient reason for applying for the Sovereign's assent. Proposals other than Bills proper may be submitted independently to the Crown by either Chamber. Both Chambers, whether sitting in separate or united session, possess the right of "enquête" and of appointing commissions of members, with power to take evidence. The Second Chamber has the power to amend, as have also the States-General, when sitting as one Chamber.

Provisions common to both Chambers.

A member of one Chamber cannot also be a member of the other Chamber. The heads of ministerial departments (Ministers) have the right to sit in both Chambers, but they only possess advisory powers, unless they have been elected private members of the Assembly in which they sit. Members of the Chambers cannot be prosecuted for anything said by them in debate or for any written communication made by them in the Chamber.

The Sovereign has the right to dissolve the Chambers of the States-General either separately or simultaneously.

Constitution of First Chamber.

The First Chamber consists of fifty members elected by the Provincial States *(vide infra)*. The qualifications for eligibility for the First Chamber are that the candidate should be of Dutch nationality and of thirty years complete; that he shall not have lost control or possession of his property, nor have been otherwise disqualified for election by sentence of a Court of Justice; and, further, that he either is included in the category of those who are assessed the highest for direct taxation, or that he holds or has held one or more of the high public offices specified in the law of the 12th August, 1890 (see Appendix). Members are elected for nine years, one-third retiring every three years, and the retiring members being eligible for immediate re-election. (When this rule was first adopted one-third of the House were elected for three years, one-third for six years, and one-third for nine years. This procedure is also observed after a dissolution).[1] In the event of a vacancy occurring by death or otherwise, the new member is only elected for the period still unexhausted by the late member. Joint sittings of both Houses take place at the commencement and close of the session and on the demise of the Crown.

Mode of Election to First Chamber.

In every province of the kingdom there sits an Assembly termed Provincial States, which is elected on the same franchise as the Second Chamber of the States General, and the members of which elect the members of the First Chamber.

Constitutional and Dynastic changes.

Any proposal for a change in the constitution is embodied in a Bill, upon the passage of which both Chambers are dissolved. The newly-elected Chambers proceed to examine the modifications proposed, but the measure cannot become law unless it

[1] The Second Chamber is elected for four years.

has been passed by a majority of two-thirds of the newly-elected members. In the case of a proposal for a revision of the constitution in regard to the dynasty a dissolution takes place, the new Chambers, elected *ad hoc*, being composed of double the normal number of members, i.e., each constituency or electoral college electing two members to every one elected under ordinary conditions.

State of Parties.

The present (Liberal) Government have a majority of two votes in the Second Chamber, while in the First Chamber they are in a minority of twelve (July, 1907.)

Disagreement between two Chambers.

Several examples have occurred in recent years of Ministerial crises brought about by the action of the Upper Chamber in rejecting Government measures after their passage through the Lower House. In February last the Army Estimates were rejected by the First Chamber. The Government thereupon proffered their resignations, and after several months' negotiation these were withdrawn, the Minister of War alone retiring. The Army Estimates, subject to certain alterations, were subsequently reintroduced and adopted by both Chambers, but the reduction proposals, which had caused their former rejection by the First Chamber, were reserved for embodiment in a special Bill to be brought in by the new Minister of War in the coming autumn session. This incident, which is still pending, while illustrative of the procedure adopted by the Government in a given case when confronted by defeat in the Upper Chamber, can scarcely be cited as an example of disagreement or conflict between the two Houses, since in the present instance, according to statements in the press, the original Government majority in the Lower Chamber was only consequent upon a Ministerial assurance that further explanations of the proposed reduction would be given at an early date.

A different solution of a similar crisis was resorted to by the former (Clerical) Premier, Dr. Kuyper, in July, 1904, upon the rejection of his University Bill by the First Chamber. On that occasion Dr. Kuyper advised the Queen to dissolve the Upper Chamber, and the ensuing elections resulted in a majority for the Right, and therefore in the desired victory for the then Government.

Proposals for increasing Efficiency of First Chamber.

As stated above, the First Chamber does not possess the right of amendment. A modification of the constitution in regard to this question was, however, included among the recommendations of a Royal Commission appointed in the autumn of 1905 to examine certain articles of the Fundamental Law (constitution) of the Netherlands with a view to their revision, and which issued its report at the commencement of the present year. The report observes that the denial of the right of amendment to the First Chamber places the latter in a dilemma, since it can only accept or reject a measure, and cannot pronounce itself in respect of any modifications which it may deem desirable to introduce into it. By the concession of the right of amendment, on the other hand, the danger is averted of the inclusion by the Government of several separate measures in one Bill, with the object of ensuring the passage of the whole through the Upper House. No doubt, proceeds the report, the acquisition by the First Chamber of the said right would result in an increase of its direct influence upon legislation; but, on the other hand, the very exercise of the new right may pave the way for an understanding between the two Chambers. According to the recommand-

ations of the commission, the procedure would be as follows: The First Chamber having amended a Bill, the President sends it back to the Second Chamber, which may only deliberate upon the amended clauses, but is unable to propose fresh amendments. In the event of the Scond Chamber approving the amendments, the Bill would be sent direct from that Chamber to the Sovereign to receive the Royal assent. Should the amendments be rejected, the Second Chamber will return the Bill to the First Chamber with whom the final decision will rest. The First Chamber will, however, not be granted the right of amendment in regard to Bills originating in the Second Chamber (*vide supra*) nor in respect of Money Bills (*cf.* England and Prussia). The report further recommends that the President of the First Chamber should be elected by the Chamber itself, as in the case of the President of the Second Chamber; and it proposes to abolish the qualifications required of candidates for election to the First Chamber, placing them on an equal footing with candidates for the Second Chamber in this respect.

Although the recommendations of this commission have not yet been submitted to the Legislature, and their adoption or rejection are therefore not questions of immediate constitutional interest, its proposals in regard to the First Chamber are nevertheless worthy of notice, as indicative of the trend of Dutch parliamentary opinion on this subject.

THE HAGUE, July 29, 1907.

APPENDIX.

Public offices specified in the Law of August 12, 1890.

President or member of one of the Chambers of the States-General.
Vice-President or member of the Council of State.
State-Counsellor in extraordinary service.
President or member of the General Audit-Chamber.
Director of the Cabinet of the Queen.
Cabinet Minister.
Envoy Extraordinary and Minister Plenipotentiary.
Minister-Resident.
Consul-General in Dutch service.
President, Vice-President, or member of the Supreme Council.
Solicitor-General and Attorney-General at the Supreme Court of Justice.
President, Vice-President, or member of a Court of Justice.
Solicitor-General or Attorney-General at a Court of Justice.
President or member of the Supreme Military Court of Justice.
Attorney-Fiscal for the Queen's army and navy.
Queen's Commissioner in a Province.
Member of the Provincial Governments.
Burgomaster of a commune which consists of more than 20,000 inhabitants, according to the last public census.
Curator of a State University.
Curator of the Municipal University of Amsterdam.
Professor at a State University or Professor at the Municipal University of Amsterdam.
Professor-Director or Professor at the Polytechnical School.
President and member of the Royal Academy of Sciences.
Lieutenant-Admiral, Vice-Admiral, Rear-Admiral, Naval Captain, General of Infantry, Lieutenant-General, Major-General, Colonel in the Netherland or Netherland East India army.

President of the Board of Mintage.
Chief Engineer-Adviser or Chief Engineer of Shipbuilding.
Chief Inspector, Inspector, or Chief Engineer of State Waterways, &c.
President of the Council of Supervision of Railway Services.
President of the Board Sea Fishery.
President of the Chamber of Commerce in a commune, or in a group of communes, which consists of more than 20,000 inhabitants, according to the last public census.
Governor-General of the Netherland East Indies.
Lieutenant-Governor-General of the Netherland East Indies.
Vice-President or member of the Council of the Netherland East Indies.
President or member of the General Audit-Chamber of the Netherland East Indies.
General Secretary to the Government in the Netherland East Indies .
Head of a Department of General Administration in the Netherland East Indies.
President, Vice-President or member of the Supreme Court of Justice of the Netherland East Indies.
Solicitor-General at the Supreme Court of Justice of the Netherland East Indies.
President, Vice-President, or member of the Supreme Military Court of Justice of the Netherland East Indies.
Attorney-Fiscal for the Army and Navy of the Netherland East Indies.
Governor of Celebes and Dependencies, of the West Coast of Sumatra or of Atjeh and Dependencies.
Resident of Batavia, Surabaya, Djokjokarta, Surakarta, or Samarang.
Governor of Surinam.
Governor of Curacao.
President of or Solicitor-General at the Court of Justice in Surinam.

NORWAY.

No. 10.

Sir A. Herbert to Sir Edward Grey.—(Received August 6.)

Christiania, July 31, 1907.

Sir,—I have received your Circular despatch of the 10th instant, instructing me to forward a report on the composition and functions of the Second or Upper Chamber of the Norwegian Parliament.

Strictly speaking, there is no Second Chamber in Norway, though in some respects the Lagthing fulfils the functions of such a Chamber in the Norwegian Storthing. I would rather apply the term of "revising committee" to the Lagthing. No special qualifications are required in order to sit in the Lagthing, the members of which are merely selected from among and by, the members of the Storthing, and do not sit in virtue of any independent right conferred either by the electorate, or by official appointment, or by hereditary privilege.

It would perhaps have been sufficient to say that there was no Upper Chamber in the Norwegian Parliament, but as the Lagthing acts as a revisory body in the Storthing, though its powers even as such are very limited, its decisions being liable to reversal when they are submitted to the whole Storthing, I have asked Mr. Dick, translator to His Majesty's Legation, to draw up a short report on the working of the Lagthing, which I now have the honour to inclose.

I have, etc.

(For Sir A. Herbert),

W. G. MAX MÜLLER.

Inclosure in No. 10.

Report on the Norwegian Upper Chamber.

In the Norwegian Parliament there is, strictly speaking, no Upper House, the entire legislative power is vested in a body of 123 representatives elected triennially to form the Storthing. The electors are, subject to certain very limited income qualifications, all Norwegians, both male and female, over 25 years of age. The suffrage was extended to women by a law passed last month, and will be exercised at the next election two years hence.

As soon as a newly-elected Storthing meets, the members proceed to elect one quarter of their number to form the Lagthing, the remaining three-quarters constituting the Odelsthing. A list of names is proposed by a "selection committee," but it is open to any member to suggest alterations in the same, the election being practically a party question.

The Lagthing, as thus constituted, remains unchanged during all the ordinary and extraordinary sessions of the same Storthing, except that vacancies are filled, by special elections, from among the members of the Storthing.

The Lagthing together with the Supreme Court of Justice, constitutes the Rigsret, the court before which members of the Government ("Statsraad") can be impeached.

Members of the Government cannot be elected to the Storthing; they may attend and take part in debates in either of its divisions, or when it sits as a whole, but have not the right of voting.

Every Bill, except such as regard finance, is discussed by the two divisions ("Things") separately. It must be introduced into the Odelsthing first, either by one of its members or by the Government, and if acepted, either with or without amendment of the original proposal, it is sent on to the Lagthing. This latter body either accepts it—in which case the Bill is laid before the King for sanction and becomes law—or returns it to the Odelsthing with suggestions for amendments. There proposed amendments are then considered by the Odelsthing. If accepted, the Bill is considered passed; if, on the contrary, the Odelsthing considers the suggestions of the Lagthing inadmissible, the Bill can be dropped, or it can again be sent to the Lagthing, with or without further alterations. Should the Lagthing again refuse to accept the Bill as sent to it from the Odelsthing, the whole Storthing sits as one House to vote on the proposed measure, and in this case it requires a two-thirds majority of all the members of the Storthing to enable the Bill to become law.

All Bills involving questions of finance, motions criticizing Government action, the naturalization of foreigners, concessions for works of public utility, come straight before the whole Storthing, and are decided by a bare majority of votes.

It will be seen from the above that the danger of "constitutional disputes" between the two divisions of the Norwegian Parliament does not exist, the constitution expressly providing a remedy in cases of disagreement.

PORTUGAL.

No. 11.

Mr. Beaumont to Sir Edward Grey.—(Received August 19.)

LISBON, August 9, 1907.

SIR,—With reference to your Circular despatch of the 10th ultimo, I have the honour to transmit herewith a report, prepared by Sir Somerville Head, on the composition and functions of the Upper Chamber in Portugal.

I have, etc.,

H. D. BEAUMONT.

Inclosure in No. 11.

REPORT BY SIR S. HEAD ON THE PORTUGUESE CHAMBER OF PEERS.

The constitutional charter of the Kingdom of Portugal, as granted in 1826 and re-established in 1842, made provision for the composition and functions of the House of Peers. Modifications have since been introduced by various acts of the Cortes.

The Chamber is now composed:—[1]

1. Of peers appointed by the King, the number of whom may not exceed ninety.

2. Of peers in their own right. These are:—

(*a*) The Princes of the blood Royal on attaining the age of 25;

(*b*) The Patriarch of Lisbon and the Archbishops and Bishops of the continental kingdom.

3. Hereditary Peers. The hereditary principle, which for some time prevailed, was restricted by laws passed in 1845 and in 1878, and provision was made for its gradual abolition by the law of the 24th July, 1885. Hereditary Peers now consist only of those who were already peers in July, 1885, and their immediate successors, if born before that date. On the death of the last of these hereditary peers the Chamber will consist entirely of life peers nominated by the Crown, and of the peers in their own right referred to above. The present King has consistently nominated peers recommended by the ministry in power at the time of a vacancy occurring, but there is nothing in the constitution to prevent the King from filling up vacancies in the Upper House without consulation with his ministers.

No person may be nominated a peer until he has reached the age of 40, and unless he has received a secondary education or is in possession of an annual income of 400,000 reis (£90).

The following functions pertain exclusively to the Chamber of Peers:—

1. Trial of offences committed by members of the Royal Family, Secretaries of State, Peers, and by Deputies while the Cortes is in session.

2. Investigation into the responsibility of Secretaries of State and certain other functionaries.

3. Convocation of the Cortes on the death of the Sovereign for the appointment, if necessary, of a Regent.

The peers, as well as the deputies, are required to take an oath of allegiance to the King, Prince Royal, or Regent.

All purely legislative functions are common to both Chambers, including the control over the public finances, but the initiative of financial measures and of Bills for the recruitment of the army and navy rests solely with the Chamber of Deputies.

The duration of each Parliament is fixed at three years. The legal period for sessions is three months in each year, but provision is made for prolonging ordinary sessions and for calling extraordinary sessions.

The sittings of the Upper Chamber are public, except when reasons of State require that they should be secret; all questions are decided by an absolute majority of votes. The President and Vice-President of the Chamber are appointed by Royal decree.

Peers are inviolable for the opinions they express in the performance of their functions.

No person may be at the same time a member of the Upper and Lower Chamber, members of the Upper Chamber may be appointed Secretary of State or Councillor.

[1] Up to 1896 the Chamber included fifty Peers elected by Electoral Colleges, forty-five of whom represented administrative districts and five of whom were returned by scientific establishments.

and may hold appointments as diplomatic representative, high commissioner of any colony, or court official. Ministers of the Crown sit and take part in the debates in both Chambers, but only vote in that Chamber of which they are members.

The Act of April, 1896, on which the present composition and functions of the Upper Chamber are principally based, also provides for the appointment of high Government officials as special delegates to take part in the Legislative Chambers in the discussion of particular Bills. The same Act further lays down that when one of the Legislative Chambers does not approve in whole or in part any Bill issuing from the other Chamber, or does not approve the amendments or additions made by the other Chamber to any Bill, a Committee of an equal number of peers and deputies shall be appointed, and, in accordance with the decision of the majority of the committee, the Bill shall either become law or shall be rejected. If there be an equality of votes on the Bill or on any of its articles, or on any amendments or additions, or if the committee can come to no agreement on the question submitted to them, either of the Chambers may petition the Crown for the reassembly of the Cortes with a special mandate to deal finally with the matter.

No constitutional disputes have arisen during the last ten years between the Upper and Lower Chambers.

PRUSSIA.

No. 12.

Count de Salis to Sir Edward Grey.—(Received August 6.)

BERLIN, July 31, 1907.

SIR,—In obedience to the instructions conveyed to me in your circular despatch of the 10th instant, I requested Lord Cranley to draw up a memorandum regarding the constitution and functions of the Upper House of Parliament in Prussia, copy of which I have the honour to inclose herewith.

I have, etc.,

J. DE SALIS.

Inclosure in No. 12.

MEMORANDUM BY LORD CRANLEY ON THE COMPOSITION AND FUNCTIONS OF THE PRUSSIAN UPPER HOUSES OF PARLIAMENT.

Short Historical Sketch of Events leading to the grant of a Constitution and the establishment of a Parliament.

The Prussian Herrenhaus is largely based on the constitution of the former provincial estates, and in order therefore to fully comprehend the complicated nature of its construction it is necessary to give a short sketch of the constitutional history of the country which lead to the grant of the constitution of 1850.

Until the year 1848 Prussia was an absolute monarchy governed in conjunction with the estates of the realm. The development of the estates was regulated by the conditions of the time prevailing in the Empire. Their power gradually increased. Under Joachim II scarcely anything could be done without their consent, and without them no tax could be levied or altered. The Great Elector curtailed their influence, and gathered gradually all power into his own hands. In this policy he was followed by his successor, and in 1727 Frederick William I was able to declare that the privileges of the estates were "antiquated and long-forgotten." Prussia thus

became an absolute monarchy. During the Napoleonic wars ideas of freedom and constitutional representation permeated into Germany from France. The first official pronouncement regarding national representation in Prussia was the edict of Frederick William III of the 27th October, 1810, in which the King declared himself willing to grant a system of representation both for the provinces and for the whole country.

At the Congress of Vienna, 22nd May, 1815, the King announced his intention of granting a constitution to Prussia, and a scheme for a Parliament was laid down. This scheme for national representation, which was based on a united Assembly drawn from representatives of the provincial estates, came to nothing, and during the whole of the remainder of the reign of Frederick William III the tendency of the policy of the Government was much more towards reaction than towards constitutional freedom. In 1840 Frederick William III died, and was succeeded by his son Frederick William IV. At the outset of the reign a more liberal regime was confidently expected, but it soon became clear that, although the King wished to rule in a more enlightened fashion than his father, he did not intend to abate any of his claims to govern by divine right, or to divest himself of his father's absolute power. The agitation for constitutional reform grew in strength during the first seven years of the reign, and in 1847 the King summoned a Diet, composed of representatives of the provincial estates, consisting of two Houses. The Upper House was formed of the princes, counts, and lords who possessed votes in the provincial Diets, and numbered eighty members. This concession, however, did not suffice to allay the agitation. Disturbances took place in Berlin on the 18th and 19th March, 1848, and it became clear to the King that it was no longer possible to combat the popular demand. Frederick William therefore gave way completely. He declared that he would place himself at the head of the popular movement, changed his Ministry, and commanded the Diet to pass an electoral law to enable a constituent assembly to be chosen. The Diet was then abolished, and the constituent Assembly began to discuss the new constitution. The Assembly met in May, 1848, but their debates came to nothing. On the 5th December the King dissolved the Assembly and published a constitution which had not been laid before the Chamber. This constitution provided for two Houses, the members of the Upper House being elected by all Prussians over 30 years of age who paid at least 8 thalers in direct taxation yearly, or who possessed real property to the amount of 5,000 thalers. This is the first measure which really admitted Prussia to the rank of a constitutional State, since thereby the King by his own prerogative abrogated his absolute power, and was only enabled to make or repeal laws in accordance with the limits of the constitution. The 1848 constitution provided for its revision by the Chambers, and in a Message, dated the 31st January, 1850, the King published a new constitution with the approval of both Houses.

It is this constitution that has become the fundamental law of the Prussian State. By the original draft the Upper House, called in German "Herrenhaus," or "House of Lords," consisted of 240 members of five classes:—

(*a*) Princes of the Royal House of Prussia of the age of 18 and upwards.

(*b*) Mediatized princes and the heads of families appointed by Royal Ordinance to seats in the House according to the rights of primogeniture and lineal descent.

The Members comprised in classes (*a*) and (*b*) might not exceed 120.

(*c*) Ninety deputies directly elected by electoral districts comprised of electors paying the highest taxes to the State.

(*d*) Thirty members elected by the Municipal Councils of the large towns.

The composition of the "House of Lords" was largely changed by a law, dated the 12th October, 1854, which regulates—

The present Composition of the "Herrenhaus."[1]

Members of the House may be divided into three classes:—

I. Territorial nobility:—

(*a*) Hereditary representatives.

(*b*) Representatives of the lesser landowners and ecclesiastical chapters elected by them, and presented to the King for nomination as life members.

II. Representatives of the universities and larger towns, selected by the Senates or Town Council, and presented to the King for nomination as life members or for a term of years in case of the representatives of the towns.[2]

III. Life peers nominated by the King.

I. The territorial representatives are divided into nine classes, four of which are composed of hereditary members and five selected by the King:—

1. The head of the House of Hohenzollern Sigmaringen.

2. The twenty-two princes mediatized at the Congress of Vienna who are Prussian subjects.

3. The representatives of the nobility summoned to the Upper House by the Diet of 1847, i.e., the Princes and Lords of Silesia, and those princes, counts, and lords who are hereditary members of the eight provincial Diets. There are at present fifty-two such families.

4. Representatives of families to whom a hereditary seat has been granted by patent, of which there are at present thirty-two.

Selected members representing the land-owning class.

5. The four great territorial officers of Prussia:—

The Landhofmeister.
The Chancellor.
The Obermarschall.
The Oberburggraf.

6. Representatives of the three Cathedral chapters. Members of the chapters elected by their colleagues for presentation to the King for selection.

7. Representatives of the "Unions of the Counts of the eight provinces." In each of the eight provinces the assembly of Counts holding Knights' estates have the right to elect one representative for presentation to the King for selection.[3]

8. The fifty-six "Unions of ancient and assured landed properties." These Unions together present ninety members for selection.[4]

A Knight's estate, in order to be able to send an elector to the Union, must have been in the same family for at least fifty years, and must be entailed in the direct line.

9. Representatives of families holding large estates which have been granted the right to present one of their members for selection by the King. There are at present sixteen such families.

II. Selected members representing the towns and universities:—

1. The Senate of each of the Prussian Universities chooses a member of their body to present to the King for selection.

2. Forty-eight towns have been accorded the right to choose a member of the town magistracy to present to the King for selection, either as life members or for a fixed period.

[1] See Annex 2.

[2] By a law of March 23, 1872, members of the Audit Department cannot be elected to the Landtag.

[3] See Annex 3.

[4] See Annex 4.

III. Life members:—

1. Princes of the House of Prussia summoned to attend by the King. No prince has, however, received a summons to attend since the constitution was granted.

2. Persons specially selected by the King on account of their services to the country. At present the life peers number sixty-two persons, and consist of landowners, civil officials, diplomatists, clerics, military and naval officers, university professors, merchants, mineowners, manufacturers, and bankers.

Qualifications for Membership of the "Herrenhaus."

1. No person can be a member of the Upper and Lower House at the same time.

2. All members of the Herrenhaus must be Prussian subjects domiciled in Prussia. They must be in full exercise of their civil rights, and not in the active service of a foreign State.

Princes of the Royal House must be at least 18 years of age; representatives of the "Unions of Counts" and the "Unions of ancient and assured landed properties" must be at least 25 years of age, and all other members at least 30 years of age.

3. The qualification of the members is to be proved by the House.

Disqualifications of Members of the House and the Methods by which the place of a Member who has been unseated is refilled.[2]

Should a member be considered by the King, with the consent of the House, to have forfeited his honour, or to be living or behaving in a manner derogatory to the House, he may be deprived of his seat. The same penalty is inflicted on him if he loses his honour in accordance with 33 or 34 of the Penal Code.[3]

Should a member be charged with a crime, or should there be any other weighty ground for suspending him temporarily from his seat, the House may so suspend him with the Royal consent.

Should an hereditary member of the Chamber be deprived of his seat, his family must obtain the Royal consent to the election of a person to be presented for Royal selection in his place.

Should a life member be deprived of his seat the Sovereign will decree a fresh presentation.

Rights, Duties, and Privileges of the "Herrenhaus," as laid down by the Constitution.[4]

1. The Landtag must be regularly convoked during the month of November.

2. The Herrenhaus must be convoked, adjourned, and prorogued at the same time as the Lower House.

3. The Herrenhaus possesses an equal right to propose legislation with the King and the "Abgeordnetenhaus," but Money Bills must be introduced in the Lower House, and they must be accepted or rejected *en bloc* by the Herrenhaus. No Bill can become law without the consent of the Crown and of both Houses.

4. The proceedings of the Herrenhaus are public, but a secret debate may be ordered on the proposition of the President or of ten members.

5. No resolution is valid unless a quorum (sixty) of the House be present.

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[1] See Annex 1.
[2] See Annex 1.
[3] See Annex 4.
[4] See Annex 1.

6. The Herrenhaus can demand the presence of Ministers to give explanations or to reply to questions. Ministers or their representatives have the right to speak in the House, but not to vote unless they are regular members thereof.

7. The Herrenhaus has the right to present addresses to the King.

8. No one may deliver a petition or address to the House in person.

9. The Herrenhaus may appoint Commissions of Investigation, which present their reports to it.

10. The Herrenhaus settles its own procedure and elects its own officers.

11. The Herrenhaus may impeach Ministers for breach of the constitution, corruption, or treason, and the matter is then tried by the highest court in the realm.

12. The decisions of the House are by a majority.

Rights, Duties, and Privileges of Members, as laid down by the Constitution.[1]

1. All members must take the oath of loyalty to King and constitution in the prescribed form.

2. The members of the House are considered to be representatives of the whole nation. They are to vote according to their convictions, and are not bound by previous instructions. They cannot be called to account either for votes or opinions given by them in the House.

3. No member of the Herrenhaus can be arrested without the consent of the House, unless the arrest be effected *in flagrante delicto* or within twenty-four hours of the committal of the crime. This also applies to arrest for debt.

4. Should the Chamber demand it, all criminal proceedings against one of its members, and all judicial examination or civil arrest must be suspended during the session.

5. Civil officials do not require leave of absence from their duties to attend the sittings of the House.

6. No member can have two votes or vote by proxy. In the case of a member becoming entitled to two votes, one of them lapses (*e.g.*, the present "Oberburggraf" and "Obermarschall" were already qualified members of the House when they were appointed to these offices, and their votes in the latter capacity consequently lapsed.)

CRANLEY.

ANNEX 1.

BERLIN, July 17, 1907.

Extracts from the Provisions of the Constitution of 1850 *regulating the Constitution and Functions of the Upper House.*

XLVIII. The King has the right of declaring war and concluding peace, as also of entering into other treaties with foreign Governments. The latter, in order to be valid, require the concurrence of the Chambers, if they are commercial treaties, or if burthens are thereby imposed upon the State or obligations upon individual citizens of the State.

XLIX. The King has the right of granting pardons and mitigating punishments. This right can only be exercised in favour of a Minister who is condemned in consequence of his official acts on the motion of the Chamber from which the accusation proceeded.

The King can only quash an inquiry already commenced by virtue of a special law.

[1] See Annex 1.

LI. The King convokes the Chambers and closes their sittings. He can either dissolve both at once or only one. But in such a case the electors must be assembled within a period of sixty days after the dissolution, and the Chambers within a period of ninety days after the dissolution.

LII. The King can prorogue the Chambers. Without their consent this prorogation cannot exceed the term of thirty days, and cannot be repeated during the same session.

LVII. If there be no agnate of age, and if this case have not already been legally provided for, the Ministry of State has to convoke the Chambers, which are to elect a Regent in a united sitting. Until this entry upon the Regency, the Ministry of State conducts the Government.

LX. The Ministers, as well as the officers of the State appointed to represent them, have access to each Chamber, and must at all times be heard at their desire. Each Chamber can desire the presence of the Ministers. The Ministers have only a right of voting in the Chamber in which they are members.

LXI. The Ministers may be impeached by the resolution of a Chamber for the crime of violating the constitution, of corruption, and of treason. The Supreme Court of Judicature of the Monarchy decides upon such an impeachment in united debates. So long as two Supreme Courts of Judicature still exist, they assemble together for the above object.

LXII. The legislative power is exercised in common by the King and the two Chambers.

The agreement of the King and both Chambers is requisite for every law.

Projects of financial laws and Budgets will first be submitted to the Second Chamber. The latter will be wholly adopted or rejected by the First Chamber.

LXIV. To the King, as well as to each Chamber, belongs the right of proposing laws.

Proposed laws which have been rejected by one of the Chambers or by the King cannot be brought forward again during the same session.

LXXVIII, paragraph 1. Each Chamber examines and decides upon the legitimation of its members. Each regulates the course of its proceedings and its discipline by an Order of Proceeding, and elects its president, vice-presidents, and secretaries.

Paragraph 2. Government officials require no leave of absence in order to attend the Chambers.

LXXIX. The sittings of the Chambers are public. Each Chamber may proceed, on the motion of its president or of ten members, to a secret sitting, in which the first thing to be decided upon is this motion.

LXXX. Neither of the two Chambers can pass a resolution, if the majority of the legal number of its members be not present.

Each chamber passes its resolutions according to the absolute majority of votes, with a reservation of any exceptions which may be decided upon for elections, by the regulations for the Order of Proceedings.

LXXXI. Each Chamber has the right of sending addresses to the King.

Nobody shall present in person a petition or an address to the Chamber, or to either of them.

Each Chamber can refer to the Ministers the papers addressed to it, and ask them for information relative to the complaints received.

LXXXII. Each Chamber has the power of appointing committees in order to inquire into facts for its information.

LXXXIII. The members of both Chambers are representatives of the whole people. They vote according to their free conviction, and are not bound by commissions or instructions.

LXXXIV. They can never be called to account for their votes in the Chamber, and for the opinions expressed in it, only within the Chamber by reason of the regulations for the Order of Proceedings (article lxxviii).

No member can be proceeded against or arrested for a penal act without the consent of the Chamber to which he belongs during the period of a session, except when he is taken in the act, or in the course of the day following its commission.

A similar consent is necessary in case of an arrest for debt.

Every penal proceeding against a member of the Chambers, and every preliminary or civil arrest is removed for the period of the stitting, if the Chamber concerned demands it.

CVII. The constitution may be altered by the usual way of legislative proceeding, in which case the ordinary absolute majority of votes in each Chamber, on two divisions between a period of at least twenty-one days must intervene, is sufficient.

CVIII. The members of both Chambers and all functionaries of the State take the oath of allegiance and obedience to the King, and swear the conscientious observance of the constitution. The army is not sworn to the constitution.

CXIX, paragraph 1. The oath of the King, mentioned in article liv, as well as the oath prescribed to be taken by both Chambers and by all functionaries of the State, are to be taken immediately after the present revision of this Constitution has been completed by legislative proceeding (articles lxii and cviii).

Annex 2.

Law of October 12, 1854, regarding the Constitution of the Upper House of the Prussian Parliament.

I. The Upper House consists of:—

1. Princes of the Royal House of full age, as established by the Prussian Royal Family law, who are summoned to attend by the King.
2. Hereditary members.
3. Life members.

II. Hereditary members are as follows:—

1. The head of the Princely House of Hohenzollern Sigmaringen.
2. The head of those mediatized families recognized by the Congress of Vienna who are Prussian subjects.
3. Those princes, counts, and lords who were summoned to the Upper House of the United Landtag of 1847.

N.B.—The princes and lords of Silesia, and those princes, counts, and lords who are members of the eight provincial Landtags.

Besides the above-mentioned persons, those having a hereditary right to a seat and vote in the Upper Chamber comprise persons who have been summoned to a seat in the Herrenhaus by a Special Royal Ordinance or Patent. The manner in which the succession to the seat is determined on the death of the holder is laid down in each individual Patent.

III. Life members are selected from the following categories:—

1. The holders of the four great offices of Prussia.
2. Persons specially chosen by the King for selection.

IV. The right of presentation for selection belongs to:—

1. The chapters who are represented in the Upper House of the United Landtag of 1847.
2. A representative of the nobles possessing Knight's estates in each of the eight provinces.

3. A representative of those families who possess large landed estates to whom the right to present a member to the King for selection has been granted.

4. The Unions of ancient and assured properties.

5. A member of the Universities.

6. A member of each of the towns to whom the right has been conceded.

V. The representatives presented by the chapters must be chosen by each chapter from among its members. Those presented by the universities must be chosen from among the professors of the university by the academic Senate, and those chosen by the towns by the town council, or, in default of a collegiate assembly, by the constitutional representatives of the town from among the members of the magistracy.

VI. The rules as to the constitution of Unions of ancient landed properties, and those as to the exercise of the right of presentation, are laid down by the Crown.

VII. Only Prussian subjects 30 years old, in full exercise of their civil rights, domiciled in Prussia, and not in the active service of a non-German State, can be members of the Herrenhaus.

VIII. Members of the Upper House chosen under paragraphs 4, 5 and 6, lose their seats should they lose their qualification for presentation to the King for selection.

IX. If a Royal decision is communicated to the House to the effect that one of the members has lost his honour, or that he is living or behaving in a manner derogatory to the House, he may, with the consent of the House, be deprived of his seat.

X. With the Royal consent a member of the House may be suspended from his functions while an investigation as to his proceedings is in process, or for any other important cause.

XI. If a member be deprived of his seat, the Royal consent must be obtained, in the case of an hereditary member, to select another member of the same family to fill his seat; and in the case of a member selected for presentation, as provided in paragraphs 4, 5 and 6, a Royal command will be issued for another presentation to be made for selection.

Annex 3.

Decree for the Regulation of the Constitution of Unions of Ancient and Assured Landed Properties, and for the Regulation of the Election of persons to be presented for selection as Members of the Herrenhaus both by the Unions and by the Provincial Unions of Counts.

1. Representatives of the Unions of ancient landed properties are chosen in the following proportions:—

Province of Prussia	18
" Brandenburg	15
" Pomerania	13
" Silesia	18
" Posen	7
" Saxony	10
" Westphalia	4
" Rhine	5

2. A Knight's estate, in order to be considered "an ancient landed property," must have been in the same family for at least fifty years. (The family changes, if the daughter being an heiress marries a man owning real property.)

3. To be considered "an assured landed property" the succession must be entailed in the male line.

4. Persons presented for selection either by the "Unions of ancient and assured landed properties" or by the provincial Unions of nobility, must be Prussian subjects 25 years of age, in full possession of civil rights, not in the active service of a non-German State, and must be domiciled in Prussia.

5. Hereditary members of the Herrenhaus cannot take part in the election, either of persons to be presented for selection by the "Unions of ancient and assured landed properties," or of persons to be presented for selection by the provincial Unions of nobility; but members of the latter Unions, who are qualified by their Knights' estates as members of the "Unions of ancient and assured landed properties," are entitled to vote in both categories.

6. If a Knight's estate is in possession of several persons, only one is entitled to vote, though that vote may be exercised by any one of the proprietors.

7. A land owner possessing property in several Unions can exercise his vote in each.

8. The elections of persons to be selected for presentation must be arranged by the members of the Union.

9. The process of election is governed by the regulation for the election of the estates of the 22nd June, 1842, but no election is valid unless at least ten electors exercise their votes.

10. The register of voters and the appointment of a polling day is in the hands of the chief Government official of the district.

11. Should there be less than ten qualified voters in one Union, they must vote together with the nearest Union, which numbers at least ten qualified voters.

Annex 4.

Extracts from Sections 32, 33 and 34, of the German Penal Code, May 15, 1871.

32. The penalty of death, and penal servitude entails loss of honourable civil rights; in the case of condemnation to prison, only for sentences exceeding three months.

33. The rights formerly enjoyed by a person who loses his honourable civil rights lapse altogether, and he thus loses the right to take part in public elections or to fill any public office or dignity.

34. During the course of his sentence any person who has lost his honourable civil rights is unable:—

(1) To be nominated to any office or dignity;

(2) To take part in public affairs, to elect representatives, or to be elected as a representative, or to exercise any other political right.

SAXONY.

No. 13.

Mr. Findlay to Sir Edward Grey.—(Received August 24.)

Dresden, August 21, 1907.

Sir,—In reply to your Circular of the 10th ultimo, I have the honour to inclose herewith a report on the composition and functions of the First or Upper Chamber of the Saxon Landtag, together with a short account of two differences of opinion which have arisen between the First and Second Chambers during the last six years.

I have, etc.,

M. DE C. FINDLAY.

INCLOSURE IN No. 13.

Report on the Composition and Functions of the First or Upper Chamber of the Saxon Landtag, and respecting recent disputes between the two Chambers.

The Upper Chamber comprises princes of the Royal Family who are of age, one deputy of the Lutheran Archbishopric of Meissen, one deputy of the Herrschaft of Wildenfels, one of the proprietors of the mediatized domains (which are now held by five owners), one deputy of the University of Leipzig, the two proprietors of "Standesherrschaften," the Lutheran "Oberhofprediger" in Dresden, the Roman Catholic Dean of Bautzen, the Superintendent at Leipzig, one deputy of the Collegiate Institution of Durzen, one of the owners of four estates in fee, twelve deputies elected by the owners of other nobiliar estates for life, ten proprietors and five other members elected by the King for life and the mayors of eight towns

The qualification for a seat in the Upper House is the possession of a landed estate worth at least 4,000 marks a year, and for the right to elect a member to the same the possession of a landed estate valued at least at 3,000 marks a year.

Each member (except the hereditary members) receives 12 marks per diem, or 6 marks if he usually resides in Dresden, and travelling expenses.

The Upper House may propose new laws, even of a financial nature, and may amend financial Bills passed by the Second Chamber; but no taxes can be levied, nor laws passed, except by the common consent of both Chambers.

The parliamentary system in Saxony is very different from ours. The Chambers are only convoked once every two years, and it is not necessary or even customary for Ministers to resign because they have been defeated in Parliament. Ministers are, in fact, responsible to the King, and not to the Chambers, though it would probably be impossible for a Minister who had lost the confidence of the Chambers to maintain his position for any length of time unless supported by the public opinion of the country at large.

In case of a difference between the two Chambers, i.e., the rejection by the one of a Bill passed by the other, the matter is referred to deputations of both Chambers, who meet and endeavour to arrive at an agreement.

Of recent years there have been two differences of opinion between the First and Second Chambers of the Landtag:—

1. In 1901 the Second Chamber passed a Bill subjecting agricultural stock and plant, (machinery, buildings, draught horses, and cattle) to taxation on their estimated value, from which they had hitherto been exempted. This Bill was rejected by the First Chamber, in which the landed and agricultural interests are strongly represented. The Bill was discussed in every session up till 1906, when it was finally accepted by the First Chamber.

2. In 1905, Minister von Metzsch introduced a Bill altering the constitution of the First Chamber by the introduction of various university, municipal, and commercial representatives appointed by the King, but chosen, at any rate indirectly, by election. The First Chamber rejected this Bill. Deputations of both Chambers were appointed, and discussed the proposed reform at length, but without result, and finally separated "in a friendly manner." Minister von Metzsch resigned not long after the rejection of his proposed reforms.

M. De C. FINDLAY.

DRESDEN, August 21, 1907.

SESSIONAL PAPER No. 246

SPAIN.

No. 14.

Sir M. de Bunsen to Sir Edward Grey.—(Received August 6.)

SAN ILDEFONSO, August 2, 1907.

SIR,—In obedience to the instructions contained in your Circular of the 10th ultimo, I have the honour to forward herewith a report which I have drawn up on the Spanish Senate.

I have, etc.,

MAURICE DE BUNSEN.

Inclosure in No. 14.

REPORT ON THE SPANISH SENATE.

In its present form the Senate dates from the constitution drawn up in 1876, a year after the Bourbon restoration in the person of King Alfonso XII. Article 18 declares that the power to make laws resides in the Cortes with the King. The Cortes are described in article 19 as two "co-legislative" bodies of equal power, namely, the Senate and the "Congreso," of Chamber of Deputies. Article 20 gives in outline the composition of the Senate, namely:—

1. Senators in their own right.
2. Life senators named by the Crown.
3. Senators elected, in the manner to be determined by law, by the "Corporations of the State, and the highest taxpayers."

Non-elected senators not to exceed in number the 180 elected senators.

The constitution itself gives in articles 21 and 22 the qualifications for the above three categories of senators.

The following are senators in their own right:—

Sons, being of full age, of the King and heir to the Crown.

Grandees in their own right, being Spaniards, and having an income of 60,000 pesetas (2,400*l.* at par) a year derived from real property, or from such as is held to be legally equivalent.

Captains-General of the Army (i.e., Field Marshals) and the admiral of the Fleet. There are at present two Captains-General out of a possible four. The office of Admiral of the Fleet, vacant by the recent death of Admiral Beranger, has not been filled up.

Patriarch of the Indies (an extinct dignity) and Archbishops.

Presidents of Council of State, Supreme Court, Court of Accounts, Supreme Council of War and Marine after two years' office.

The following, being Spaniards, may be nominated or elected senators:—

1. Presidents of Senate and Chamber of Deputies.
2. Deputies who have sat in three different Parliaments, or in eight parliamentary sessions.
3. Ministers of the Crown.
4. Bishops.
5. Grandees of Spain.
6. Lieutenant-Generals and Vice-Admirals after two years' employment.

7. Ambassadors after two, and Ministers Plentipotentiaries after three years' active service.

8. Members of Council of State, Supreme Council of War and Marine, and various other officers of the law and military orders.

9. Presidents of the six Academies, viz., Royal Academy of Spain, and Academies of History, Fine Arts, Exact Sciences, Moral and Political Sciences, and Medicine.

10. Senior members of the above Academies, Inspectors-General of Civil Engineers, University Professors of four years' seniority. They must have an income of 7,500 pesetas (300*l.* at par) a year.

11. All persons of title, ex-deputies to Cortes or provincial Assemblies, ex-mayors of provincial capitals and towns of over 20,000 inhabitants. These must have an income of 20,000 pesetas (800*l.*) a year, or pay 4,000 pesetas (160*l.*) in direct taxes.

12. Ex-senators under former constitutions.

Royal decrees nominating life senators must specify which of the above twelve categories is the one to which the nominee belongs.

It is further required (article 26) that senators be over 35 years of age, that no criminal action be pending against them, that they be in full enjoyment of their political rights and that there be no embargo on their property. Senators may accept no office (except that of Minister of the Crown), promotion, title, or decoration while the Cortes are sitting (article 25).

The election of senators is regulated by the law of the 8th February, 1877. It enumerates in the first place the "Corporations of the State," who elect senators under article 20 of the constitution, viz:—

1. Archbishop, Bishops, and Chapter of Archiepiscopal Sees of Toledo, Seville, Granada, Santiago, Zaragoza, Terragona, Valencia, Burgos, Valladolid. Total, 9 Senators.

2. The six academies enumerated above. Total, 6.

3. Universities of Madrid, Barcelona, Granada, Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, Zaragoza. Total, 10.

4. The so-called "Economic Societies of Friends of the Country" elect one senator for each of the five districts which centre in Madrid, Barcelona, Leon, Seville, and Valencia. Total, 5.

Thus the "corporations" elect in all 30 out of the entire body of 180 elected senators.

The remaining 150 are elected by the 49 provinces, each returning 3 senators, except Madrid, Barcelona, and Seville, which return 4 each.

The electoral body in each province consists of:—

1. The provincial deputies (corresponding to "Conseillers-Généraux" in France, and, roughly, to County Councillors in England); and

2. Representatives of the Town Councils and highest taxpayers of the province.

The law of the 8th February, 1877, also lays down in detail the procedure to be followed by the "corporations" and provinces in electing their representative senators, and the manner in which the representatives of the town councillors and highest taxpayers are selected for the purpose of taking part in the senatorial elections at the provincial capital.

By article 32 of the constitution the King is invested with authority to summon the Cortes, which must meet every year, to suspend or close their sittings, and to dissolve, either simultaneously or separately, the elective portion of the Senate and the Chamber of Deputies. After dissolution, the new Chamber (or Chambers, as the case may be) must meet within a period of three months.

In the event of the King dissolving only the Chamber of Deputies, the elected portion of the Senate is automatically renewable as to half of its members every five years (article 24 of the constitution). In practice, however, the foregoing provision is absolute, dissolutions including always the elected portion of the Senate, as well as the Chamber of Deputies.

The Senate draws up its own internal regulations, and pronounces on the qualification of its members and the validity of their elections (article 34). The King appoints the President and Vice-Presdent of the Senate from amongst its members (article 36). Except when the Senate exercises judicial functions, one Chamber of the Cortes may not sit without the other being also in session (article 38). Laws initiate with the King, and with either of the two Chambers composing the Cortes (article 41), but laws relating to taxes and the public credit must be first presented in the Chamber of Deputies (article 42). The power of the Senate to reject or modify Money Bills is unquestioned. In practice, however, they exercise this right sparingly, and the amendments introduced into the Money Bills sent up from the Chamber of Deputies are such as the mixed committees described below always find it possible to cast into a form which will make them acceptable to both Chambers, and so secure the passage of the Bill. At the present moment the Senate is engaged in amending an important Government Bill relating to the taxation of sugar. But it is confidently predicted that there will be eventual agreement with the other Chamber, as indeed always happens in Money Bills as well as others.

Such agreement is secured by the operation of the law of relations between the two Chambers of the 12th July, 1837 (article 10), of which prescribes that "if one of the Chambers modify or disapprove in any of its parts a Bill already passed in the other Chamber, a committee shall be formed, composed in equal numbers of senators and deputies for the purpose of conferring on the mode of conciliating the conflicting opinions. The report of this committee shall be discussed without any alteration by the Senate and the Chamber; and, if accepted by both, the Bill shall be held as passed."

Thus no amendment may be introduced into the Bill as finally submitted to the Chamber, by the mixed committee.

These mixed committees consist of the committees in either Chamber which examined the Bill in question, and which consist usually of seven members, elected by the seven sections into which both Houses are respectively divided for the purpose of considering Bills. Should the deputies appointed by the Chamber to take part in the mixed committee fall short of or exceed seven in number, the Senate Committee is reduced by lot, or increased by additional committeemen appointed by the sections, in such a manner as to secure numerical equality with the representatives of the other Chamber. (Article 89 of the Senate regulations.)

It may here be explained that, both in the Senate and Chamber of Deputies, Government Bills and Bills which have passed the other House are at once referred to the seven sections, which proceed to appoint the committee whose report is the foundation of the ensuing discussion. Bills originating with a private member (Senate or deputy, as the case may be) are also referred to the sections, but before a committee is appointed to consider them at least one section, and in the case of a proposed constitutional charge a majority of the seven sections must first decide by majority, that the Bill may be read, and it is only after such first reading in open session that, the Chamber approving, the sections are called upon to appoint the requisite committee.

In the Senate (as in the Chamber of Deputies) decisions are taken by majority of votes, but to pass a law half the full number of Senators plus one must be present. This point, however, is not as a rule enforced, except on the demand of one or more senators. (Constitution, article 43.)

Apart from their legislative powers, the Cortes are required by article 45 of the constitution:—

1. To receive the constitutional oath from the King, from the Heir Apparent, and from the Regent;

2. To elect the Regent or Regency when the constitution directs, that is, in the absence of near relatives qualified under the constitution to take over the Regency automatically; and

3. To hear impeachments brought against Ministers of the Crown by the Chamber of Deputies.

The Law of Relations between the two Houses of the Cortes, already referred to, lays down the procedure to be followed when the two Houses meet as a single body, that is to say:—

1. To witness the opening or closing of the session by King or Regent in person;

2. To receive the King's oath to the constitution, or that of the Heir Apparent or Regent; and

3. To appoint a Regent or the guardian to a King in his minority.

The latter function seems, however, to be now reserved to the Senate alone, under the above-quoted article 45 of the constitution.

The functions of the Senate as a Court of Justice are defined in a law of the 11th May, 1849. The Senate sits as a Court of Justice, in virtue of a Royal decree based on a decision of the Council of Ministers, for the three following purposes:—

1. To hear impeachments brought against Ministers by the Chamber of Deputies.

2. To hear actions in respect of grave offences ("delitos graves") against the person or dignity of the Crown, or against the internal or external security of the State.

3. To hear cases of misdemeanour ("delitos") committed by Senators.

But actions brought against senators are now governed by the constitution of 1876, which lays down (article 47) that, except when caught *in flagranti*, no Senator may be proceeded against or arrested without the previous permission of the Senate, and that the Supreme Tribunal is the Court having jurisdiction over senators accused of criminal offences.

In point of fact, there has been no instance of the Senate sitting as a Court of Justice since the impeachment of Senor Esteban Collantes half a century ago.

The present party aspect of the Senate, as a whole, is approximately as follows:

Ministerialists (Conservatives)	195
Liberals (followers of Señor Moret)	66
Democrats (followers of Señor Canalejas)	25
Republicans	7
Ecclesiastics	17
Carlists	7
Religionists	5
Integrists	1
Independents	22
Catholic League	4
Royal Household	6
Total	355
Five seats vacant	5
Total of Senate	360

It cannot be said that any constitutional disputes have arisen within the last ten years, or indeed, previously, between the two Chambers of the Cortes. The provision made by the Law of Relations between the Chambers, as quoted above, and which provides the machinery for adjusting differences between them, is found in most cases to be capable of bringing about an agreement. When it is obvious that the two Chambers are irreconcilably opposed to each other on a point of importance, the practice is for the Government to procure from the Crown a dissolution. In the new Chambers resulting from the consequent general election the majority in the two Houses may or may not permit the Bill to be reintroduced and carried, and the Government takes its measures accordingly. It is not customary to press controversial questions to an issue between the two Houses. Such questions are either quietly dropped or taken up again when the parliamentary situation permits.

It may be mentioned that in July, 1906, Señor Moret, being then Liberal Prime Minister, pressed for a dissolution on the ground that the state of parties in the Chambers would not permit him to pass the Liberal measures which he held to be necessary. These measures were aimed at the modification of two articles of the constitution of 1876, viz., article 2, which places certain disabilities in the way of religious services not being those of the State Church, and article 20, which prescribes the composition of the Senate, and as to which latter article Señor Moret desired to introduce a reform increasing the existing proportion of the elected members of the Senate in relation to the non-elected portion. His object was to bring the Senate into greater harmony with the Chamber of Deputies, as regards more especially the religious question, in which it was not certain that the Senate, even after a general election, would be willing to follow the Chamber of Deputies if the latter should adopt the anti-Church legislation advocated by the extreme sections of the Liberal party.

Failing, however, to secure the support of the other Liberal leaders, who declared themselves ready to carry on the Government with the existing Chambers, Señor Moret resigned office, and it was in consequence of the vain endeavours of his Radical successors, who were divided among themselves, to carry their Bills that the present Conservative Administration took office in January last. The legislation which Señor Moret desired to pass found no support in public opinion, and the conflict to which he looked forward between the Chambers, and which he hoped to avert by a constitutional change, has, in point of fact, never come to a head.

It is, of course, constitutionally quite possible that the institution of the mixed committee might fail to secure agreement, and that a conflict might arise on a vital point. This is, however, rendered improbable by the differential treatment which is habitually extended by one House to the other; by the constitutional description of the two Houses as being co-equal in power; and by the absence hitherto in Spain of a powerful public opinion, rendering imperative the passage of a particular measure, even if it should be uncompromisingly opposed by the Senate, which is in itself an unlikely contingency in view of the manner in which the Senate is composed. The elected portion tends in the long run to coincide in opinion with the majority of the popular Chamber, and this tendency is encouraged by the prevailing practice which requires members of the Royal household (some six of whom are at present sitting in the Senate) to vote with the Government of the day, which they regard as the King's Government, and therefore commanding their support. It is, further, customary for the ecclesiastical senators to support the Government, or to abstain altogether from voting if they are not able to do so.

SWEDEN

No. 15.

Sir R. Rodd to Sir Edward Grey.—(Received August 10.)

STOCKHOLM, August 6, 1907.

SIR,—With reference to your Circular despatch of the 10th ultimo, I have the honour to transmit herewith in execution of your instructions, a report on the composition and functions of the Upper Chamber in Sweden. I observe that in this circular I am directed to report on the Second or Upper Chamber. The Upper House of the Swedish Diet is the First Chamber, and the popularly-elected House is known as the Second Chamber. To avoid confusion I have therefore spoken of the Chamber which forms the subject of my report throughout as the "Upper Chamber," though it would have been more correct to use the appellation "First Chamber."

I have, etc.,

RENNELL RODD.

Inclosure in No. 15.

REPORT ON THE COMPOSITION AND FUNCTIONS OF THE UPPER CHAMBER IN SWEDEN.

The Swedish Upper or First Chamber.

The Upper Chamber in Sweden is generally known as the "First Chamber." The popularly-elected House with a triennial legislative period is called the "Second Chamber." To avoid confusion it will therefore be safest to speak throughout of the Chamber, as to whose composition and functions a report is required, as the Upper Chamber.

Constitution and Mode of Election hitherto.

The Upper Chamber consists of 150 members, contrasted with 230 members in the second or popularly-elected Chamber. These 150 members are elected by the county councils[1] and the municipal councils of the city of Stockholm, of Gothenburg, Melmö, Norrköping, and Gefle, which are not represented on the county councils. The distribution of members depends on the population in electoral districts, which is reviewed by census every tenth year. To be eligible to the Upper Chamber candidates must be 35 years of age, and must for three years have been rated for income tax on at least 4,000 crowns (£220). As, however, members of the Upper Chamber have hitherto received no salary, they have in practice always been selected from candidates enjoying a far more considerable income. They sit in each individual case for nine years from the day of their election, and they are replaced, as vacancies occur through resignation, death, or extinction of the mandate, by others who again sit for a term of nine years. The Upper Chamber has thus in practice a permanent character. It can be dissolved, but such a step has never been taken since the Organic Law of 1866 came into operation.

Election of County and Municipal Councillors.

The mode of election of county and municipal councillors who return the members of the Upper Chamber will now be briefly described. Cities or towns which have more than one one-hundred and fiftieth of the total population are not repre-

[1] The term 'County Council' must not be assumed to be the equivalent of County Council in England. The Swedish Landsting might also be rendered by Provincial Assembly, but a province in Sweden is distinct from a län, which comes nearer to our country.

sented on the county councils, but have their own municipal representation performing corresponding functions. Such cities or towns are, as has been mentioned, Stockholm, Gothenburg, Malmö, Norrköping and Gefle.

Every town and every parish practically in Sweden constitutes a commune, but the larger towns are divided into more than one. The right to vote in the commune is enjoyed by both men and women of full age owning or renting certain real property, or contributing by direct taxation to the State. The apparently democratic basis is modified by the fact that the suffrage is a graduated one, additional votes being accumulated in proportion to the total amount paid in taxes on real property and income up to a maximum limit of 5,000 votes or one-tenth of the total voting power accruing to any one individual in the county communes, and 100 votes, or one-fifth of the total voting power, in the towns. The city of Stockholm has 100 municipal councillors. No other town has more than sixty, elected for four years, half of them retiring every second year.

In urban communes returning members to a county council, the latter are elected by the communal assembly, one for every complete total of 2,500 inhabitants. In the country communes members of the county councils are returned by indirect election, the electors being chosen by the communal assemblies, and one representative elected for every 5,000 inhabitants. County councillors must be 25 years of age, domiciled in the county, and must themselves possess the suffrage. They are elected for two years.

The return of members to the Upper Chamber thus rests fundamentally on the graduated property suffrage which determines the election of county and municipal councillors.

Reform in Constitution of Upper Chamber, and method of Election thereto passed by present Diet, but awaiting confirmation by a new Diet after General Election.

A proposal for the reform of methods of election to both Chambers is now before the country, and was carried through both Chambers of the Legislature in the session of the current year. As, however, any modification of the constitutional law of Sweden must be passed by two successive Diets, this reform cannot become law until it has also been approved by a new Diet, after the next general election for the popular or Second Chamber. The new measure, besides establishing universal suffrage and the proportional method for elections to the popular Chamber, also provides that members of the Upper Chamber shall be elected as before by the county and municipal councils, but subject to the proportional system, which is also adopted for the elections to the Second or popular Chamber. The mandate of members of the Upper House is to run in future for six years instead of for nine as hitherto. The county and municipal councils returning the members are divided into six groups. One of these groups in prescribed order will each successive year elect representatives to sit for the ensuing perior of six years. The Upper Chamber will thus remain permanent in character, one-sixth of its members only being subject to re-election every year. The county councillors will be returned by proportional election in constituencies distinct in town and country. A "political district" containing population amounting to 30,000 or upwards, will be divided into constituencies returning each at least three, at most six councillors. Boroughs will return one councillor for every 3,000 inhabitants, and where their population amounts to at least 6,000 they are to compose independent constituencies. Where the population falls below 6,000 they are to be grouped with other boroughs, so as to compose a single constituency with not less than 6,000 and not more than 12,000 inhabitants. In the communal suffrage a sweeping reform is contemplated, reducing the preponderating influence now attaching to the larger taxpayers, and giving the smaller contributors a much greater influence in the return of the Councillors who constitute the electors of the Upper Chamber. The property qualification established

by the Reform Bill for the indirect electors of the Upper Chamber is real estate of a value of 50,000 crowns (about £2,800), or an annual income of 3,000 crowns (about £105). In the country communes the electors are to have ten votes for every 1,000 crowns of rateable income, and an additional vote for every complete total of 500 crowns in excess of 1,000. Real estate is rated as producing 6 per cent on the estimated value. In the boroughs the electors are to record one vote for every 100 crowns of income up to a total of 2,000, after which total has been reached they are accorded one additional vote for each additional total of 500 crowns. In no case can the total of accumulated votes exceed forty, or one-tenth of the total voting power. The maximum income conferring votes will thus be 16,000 crowns in the country districts and 12,000 in the urban.

The proportional system is henceforth to be applied to all elections, both to those of the Upper and Second Chambers and those of the county and borough councils. The measure also contemplates the payment of members of the Upper Chamber on the same scale as prevails for members of the Second Chamber (12,000 crowns i.e., £66, or 10 crowns a day), which is not increased if the session is prolonged beyond the statutory four months.

Equal Competence for both Chambers under Constitution.

The Swedish constitution accords perfectly equal competence both in financial and other questions to both Chambers, which share the legislative authority with the King. Legislation requires the assent of both Chambers, voting independently, except in financial questions, where, under certain circumstances, a common vote is taken, but parliamentary practice allows, when the decision of the Houses shows only a slight divergence, arising from the adoption in one Chamber of an amendment not accepted by the other, that the matter in hand should be referred back to committee, with a view to effecting a compromise acceptable to both.

Financial Issues when Conflict arises decided by Joint Vote.

Financial questions on which the decisions of the two Chambers are in conflict are submitted to a common vote of both Houses voting as one body, when the absolute majority is decisive. As the Upper Chamber consists of only 150 members, whereas there are 230 in the popular Chamber, it is clear that the latter has numerically the stronger voice, but in practice, inasmuch as the Upper Chamber has generally been found homogeneous in character, while in the popular Chamber parties are more evenly balanced, the influence of the former has been somewhat preponderating.

The principle of common voting on financial questions has undoubtedly contributed to counteract constitutional conflicts between the two Houses. But in questions of internal legislation such conflicts have of late years tended to increase owing to the essentially conservative character which its composition has given to the Upper Chamber and the rapid development of progressive ideas in the country.

Conflict between the two Chambers.

In illustration of such conflicts may be mentioned the process of legislation with regard to the insurance of workmen. The first Bills introduced to deal with a portion of this problem were rejected by the Diet in 1890 and 1891. A Bill submitted by the Government in 1885 for compulsory insurance against any permanent incapacitation from work, from whatever cause, age, accident, etc., was also rejected, and further investigation demanded. A new Bill for insurance against invalidity was introduced in 1898, and here a conflict of opinion arose between the two Houses, the measure being accepted in principle, with certain provisoes, in the popular Chamber, but rejected

by the Upper Chamber, which apprehended the heavy burden with which it threatened to saddle the State. The problem of old age insurance was accordingly for the time abandoned, and in 1901 both Chambers united in approving a measure dealing with the insurance of workmen against accident only.

In contrast with its action in thus retarding legislation, the Upper Chamber in 1905 showed itself zealous to promote legislation which the popular Chamber hesitated to consent to. It had been proposed to organize an universal strike as a protest against the restrictions of the Reform Bill then before the Diet. A Bill was introduced by the Government, and modified in Committee, proposing certain modifications in the Criminal Code, by which severe penalties were to be imposed on workmen who, by breaking their contracts of engagement and going on strike, caused actual injury to life, health, or property, as well as on employees in the public service who without reasonable cause abstained from the execution of their duties, and assimilating to public servants persons employed by municipalities, railway men, and others. The Bill was carried by acclamation in the Upper Chamber, while in the popular Chamber the first part of the proposal was rejected by a majority of two, and the second by a majority of nineteen.

These cases are referred to rather as typical of the different tendencies of the two Houses than because the conflict of opinion led to any grave result. Many more instances might no doubt be offered in illustration of the charge so frequently brought against the Upper Chamber of obstructiveness to popular legislation, but all other conflicts between the two Houses have been completely thrown into the shade by the battle which arose over the larger issue of electoral reform, especially since the general election of 1905, when a Liberal majority was returned to the popular Chamber with a significant increase in Socialist representation.

The popular voice in Sweden has long demanded an extension of the suffrage tantamount to universal suffrage,[1] and the demand has gathered strength each time a settlement has been deferred. For the purposes of the present report, however, it will not be necessary to take the history of the movement further back than the Reform Bill of 1905, by which date the necessity for an extension of the suffrage had, it may be said, been universally recognized, though a large party in the country adhered to the view that with its extension the adequate representation of minorities should be safeguarded by the introduction of the proportional method in elections.

Reform Bill of 1905.

A measure uniting these two objects was introduced by the late M. Boström's Government during the session of 1905. The suffrage proposed in this Bill was practically a manhood one, but restricted to Swedish subjects who had reached the age of 25 years, and the method of applying the proportional system was in many ways open to criticism. It was carried through the Upper Chamber, where many Conservatives who might have been opposed to the extension of the suffrage in principle recognized that it was inevitable, and held that proportional elections would serve to return to their party a group numerically sufficient to enable them to dominate in joint votes on financial questions. It was rejected in the Lower Chamber, where the Conservatives were divided on the merits of the proportional system, while the Liberal groups were opposed to a measure which seemed to imperil the future action of the party, and the Extreme Left protested energetically against the raising of the age of electors to 25.

In the autumn of 1905 a general election took place, and in the new elective Chamber the Liberals secured a slight majority, which was forfeited by a largely increased return of Socialist members. A Liberal Government was formed and a new Reform Bill framed in accordance with the views of their supporters.

[1] The property qualification which it was sought to abolish was income to the amount of 800 kronor (44*l.*), or real property valued at least 1,000 kronor (55*l.*), or a lease of an agricultural estate of a value of at least 6,000 kronor.

Reform Bill of 1906.

The Bill submitted to the Diet in 1906 made no reference to the proportional method, and proposed representation by single-member constituencies with extension of the suffrage to all male Swedes who had completed their 24th year. It did not satisfy the partisans of the Extreme Left, but it was evidently hoped that the raising of the age from 21 to 24 would capture the support of moderate politicians. The Bill was entirely remodelled by a majority in the Standing Constitutional committee to which it was referred. The condition of proportional representation was restored, and the age of electors was once more fixed at 25. The majority in the committee of twenty-four, twelve from either House, consisted of all the members of the Upper Chamber and only one from the other. The Government Bill was rejected in the Upper Chamber by 126 to 18 votes, and the recommendations of the committee were adopted, with a supplementary resolution proposing to limit the mandate of members of that House to six years instead of nine. It was, however, carried in the popular Chamber by 134 votes to 94. The Prime Minister, who had addressed a solemn warning to the Upper Chamber not to oppose the national will, and had sustained in that Assembly that in political issues the two Chambers could not be considered of equal authority, recommended an immediate dissolution, in order to afford the country an opportunity of expressing its opinion on the attitude of the Upper Chamber. The Crown, however, dissented, on the strictly constitutional grounds that it would not be correct to dissolve a Chamber which had given its assent to a Royal Bill, i.e., a Government Bill, which has been approved by the Sovereign.

The Liberal Ministry then resigned, with the exception of the Minister for War and the Minister for Foreign Affairs, who had previously tendered their resignations in consequence of the attitude adopted towards the Upper Chamber by the Prime Minister and their colleagues, and these two were included in a new Administration of moderate politicians formed by the present Prime Minister, Commodore Lindman, who accepted office with a mandate from the Crown to frame a fresh Reform Bill on broad and popular lines, which should, however, not only apply the principle of proportional representation to the popular Chamber, but should also extend it to the Upper Chamber, the mode of election to which was to be completely revised with a view to giving it a more elastic character.

Reform Bill of 1907.

The reforms proposed by this Bill in the composition and constitution of the Upper Chamber itself have already been described in the earlier part of this report. As regards the popular Chamber, the proposals submitted were practically the same as those in the Bill of the Liberal Administration put forward in 1906, with the addition of proportional representation on lines which were generally admitted to be an improvement on those submitted in 1905.

The Government Bill underwent some modifications in committee, one of which had reference to the application of the proportional system, which was now amended so as to prevent the exclusion of party leaders by disloyal voting on the part of their opponents, and the other two were concerned with the communal and municipal Administrations, and thus with the basis for the electorate of the Upper Chamber. The first involved a small reduction in the property qualification of the voters, and the second threw open to women the candidature for communal appointments, but not for membership of the county councils. The committee rejected an amendment proposing a substantial reduction of the property qualification of electors to the county councils, fixed at 4,000 kronor (220*l.*) of income, or 80,000 kronor (444*l.*) of

real property, and another in favour of assigning a stipend to members of the Upper Chamber. The Government accepted without reserve the amendments adopted by the committee, and went a step further by acknowledging their readiness to adopt the amendment of the minority group in committee in favour of payment of members of the Upper Chamber.

This last concession on the part of the Government to the views of the Liberal Opposition was not popular in the Upper Chamber, but, after hearing the able and cogent exposition of the Government's policy made by the Prime Minister, the Bill, as thus modified, was adopted by 93 votes to 53 registered against it. The decision of so large a majority of the Upper Chamber, which had in a sense initiated the policy of its own reform, was a refutation of the charges of invincible obstinacy so frequently directed against that Assembly, and was probably not without its effect on the result in the popular Chamber, which divided subsequently. The Bill as amended by committee was rejected there without ballot. The Bill as amended by committee, with an addition of an amendment reducing the property qualification of the indirect electors of the Upper Chamber from 4,000 kronor (220*l.*) to 2,000 (110*l.*) of income, or real property to a value of 40,000 kronor, and assigning to members of that House a payment during session similar to that accorded to members of the other House, was carried by 122 to 105.

By this decision the views of the two Houses were brought so nearly into harmony that there was good reason to hope that a compromise would be found acceptable to both parties on the one issue, that of the property qualification, on which they were not in agreement.

The majority of the committee, to which the question was referred back, proposed to fix the property qualification at 3,000 kronor (165*l.*) of income, or real property at a value of 50,000 kronor.

The Upper Chamber then once more belied its untractable reputation, and adopted the proposal of the committee by 110 to 29 voices, while the popular Chamber recorded a larger majority in its favour, namely, 128 votes to 98, that had been secured by the amended Bill in the first ballot.

The Bill, which involves an alteration in the fundamental constitutional law, must now stand over until it has been confirmed or rejected in the first session of a new Diet after a general election. But the battle would seem to have been practically won, and there is good hope that the long-standing conflict has been thus disposed of.

By a curious irony the first Reform Bill of 1905 was carried through the Upper Chamber, but rejected by the Chamber whose electorate it was purposed to reform; while the Bill which was eventually adopted, and which included a far-reaching constitutional reform of the Upper Chamber itself, was introduced by a Conservative, though in no respects a partisan, Government, and succesfully carried through an elective Chamber with a well-defined Liberal majority.

SWITZERLAND.

No. 16.

Sir G. Bonham to Sir Edward Grey.—(Received July 24.)

BERNE, July 20, 1907.

SIR,—In compliance with the instructions contained in your circular of the 10th instant, I have the honour to transmit herewith a report on the relations between the two Chambers of the Swiss Legislature.

It will be seen that, according to the constitution and a law specially passed to define their relations to each other, they are absolutely equal, and I am informed positively that there has not been any constitutional dispute between them during the last ten years.

I have, etc.,

G. F. BONHAM.

Inclosure in No. 16.

REPORT ON THE RELATIONS BETWEEN THE TWO CHAMBERS OF THE SWISS LEGISLATURE.

The Swiss constitution does not admit of the existence of an Upper or Second Chamber in the sense in which the expression is generally used, namely, one for revising or remodelling or on occasion rejecting the decisions of the Lower. There are however, two Chambers, the relations between which are carefully defined (1) by the constitution of 1874; (2) by the law of the 9th October, 1902, revising a previous one of 1849 respecting the relations between the National Council, the Council of States, and the Federal Council, which, it may be here stated, is the Executive Government composed of seven members, the president, elected from among its members for one year, being also president of the Confederation.

The two other Councils, which for the purpose of this report it will be convenient to allude to as Chambers, constitute the Federal Assembly when they sit together, and their absolute equality is very carefully laid down.

By article 72 of the constitution, the National Council or Chamber, is elected directly by the people in the proportion of one deputy for every 20,000 electors, any fraction above 10,000 being counted as 20,000, and therefore represents the people. It consists of 167 members.

The members of the Council or Chamber of States are elected by the cantons, two members for each canton, and therefore consists of fourty-four members.

By article 89 of the constitution all federal laws and decrees must be voted by both Chambers, although they have still to be subjected to the popular vote, or *referendum*, should 30,000 voters desire it. It is further enacted that the Chambers sit separately, except on certain occasions when they sit together, as for the election of the Federal Council, or Executive Government, the Federal Tribunal, and the Chief of the Federal Army.

At the commencement of each session the Presidents of the two Chambers meet and make arrangements for the distribution of the work of the session between the two Chambers. This work, it may be observed, having been decided on by the Federal Council.

At the first or second sitting each President lays before the Chamber over which he presides the apportionment of the work agreed upon. When, before the two Chambers meet, the Federal Council declares a particular question to be of extreme urgency, the Presidents of the two Chambers, without consulting the Chambers, decide as to priority being given to it, in which case the Presidents are authorized to appoint committees (which is done by means of "bureaux," special parlimentary officials) and to start them on their work.

The absolute equality of the two Chambers is shown by the next article (3), which provides that if the Chambers or if their Presidents, as in the case mentioned in the previous paragraph, cannot agree on the question of priority the Presidents shall decide by drawing lots.

Article 4. When a law or a decree has been discussed by one of the two Chambers, the decision arrived at, signed by the President and Secretary, is communicated to the other Chamber in writing.

If either Chamber at its first meeting decides not to discuss a proposal submitted by the Federal Council, or transmitted by the other Chamber, it must inform the latter of its decision.

If one of the Chambers decides not to take into consideration any Bill or decree submitted to it in the form of a motion, or if after discussion it rejects it, no further action is taken, and the decision is not communicated to the other Chamber.

Article 5. If the decisions of one Chamber do not correspond with those already taken by the other, they are returned to the latter in order that the points at isssue may be discussed.

The fresh discussion is confined to these points, unless, as a result of amendments adopted, another discussion becomes necessary, or unless the representatives of the two Chambers mutually propose one.

The two Chambers follow this course until an agreement is established between them, or until each Chamber decides to abide by its resolutions.

Article 6. When this occurs the differences between them are submitted to a conference at which the united committees of the two Chambers must endeavour to arrive at an understanding. Should the committee of one Chamber be smaller than that of the other, it must be made up to the same number of members.

The conference is presided over by the president of the committee, representing the Chamber which had the priority in the discussion of the measure.

Article 7. The proposal formulated by this conference with the object of eliminating the divergences of opinion is communicated in the first instance to the Chamber which has had the priority with regard to the measure in question.

If the conference does not succeed in formulating a proposal, or if an agreement cannot be come to in the Chambers on the proposal, the project is considered to be thrown out, and can only be considered again by having recourse to the forms laid down by statute for further legislation.

Article 8. When the deliberations are concluded in the two Chambers, laws and decrees of general interest are referred to a revising committee to be drawn up in their final form, and to make any purely formal corrections in accordance with the existing law, the primary object being to secure conformity in the French and German texts. The committee has no power to modify the decisions of the Chambers.

The amended text is returned to the Chambers, and, if approved by them, each Chamber proceeds to the final vote.

This final vote is indispensable even if the project has not been submitted to the revising committee.

If on this final vote the project is rejected by the two Chambers, or by one of them, it is considered abortive, and can only be reconsidered if brought forward in the manner prescribed by statute for further legislation.

It is therefore clear that, both according to the Swiss constitution and the law regulating the position of the two Chambers, there is no Upper Chamber in the sense employed in other countries, and their footing of absolute equality apparently works well, as there is no record of constitutional disputes within the last ten years. The consent of both Chambers is indespensable for the passing of a measure, and in case of disagreement ample opportunity is given for arriving at an understanding. If they nevertheless disagree, the measure has to be abandoned.

The same procedure as that described above is applied to the Budget, which is prepared by the members of the Federal Council in charge of the Finance Department, and is then submitted to both Chambers. Although there is no written rule to that effect, priority is given to each Chamber in alternate sessions, absolute equality between both Chambers being thus maintained. A Budget, however, is never thrown out entirely, as an agreement between the two Chambers is either arrived at or the figures in the Budget are accepted.

UNITED STATES.

No. 17.

Mr. Bryce to Sir Edward Grey.—(Received October 19.)

INTERVALE, NEW HAMPSHIRE, October, 5, 1907.

SIR,—I have the honour to transmit to you herewith a report on the United States' Senate, which has been compiled by Mr. Seeds, Third Secretary in His Majesty's Embassy, in accordance with the instructions contained in your circular of the 10th July last.

I have, etc.,

JAMES BRYCE.

Inclosure in No. 17.

REPORT BY MR. SEEDS ON THE UNITED STATES' SENATE.

In creating a Senate, or Upper Chamber, the framers of the United States' constitution had two main objects in view. It was felt that in a federation of states theretofore sovereign it was necessary to provide a means by which each state could exert its influence as a separate Commonwealth in the National Legislature and enjoy equal representation with any other state, without discrimination in favour of area, wealth, or population. Secondly, the leaders of the convention of 1787 realized the need for creating a legislative body which would be less affected by sudden, and perhaps unreasonable, changes of public opinion than might be a House of Representatives elected directly by the people.

The former of these objects was attained by providing that every state, irrespective of size or population, should send two representatives to the Senate, each of whom was to possess one vote.

In the second place, the constitution laid down that the term of office of senators should be six years (as opposed to the two years' term of members of the House of Representatives), and that the elections for the Second House should be indirect—or, rather, that they should be in the hands of the Legislatures as representing the State Governments.

There being at present forty-five states in the Union, the Senate consists of ninety persons, and is presided over by the Vice-President of the Unites States. This official is not chosen by the Senate, but is elected at the general presidential election. He does not participate in the debates, but directs the order of business, and casts a vote only when the Senate is equally divided.

The Senate, unlike the House of Representatives, all the members of which are elected at the same time every two years, is a permanent body, and has existed continuously since its first creation, one-third of it only being renewed every two years. This was effected by the division of the whole body of senators into three classes in the first Congress. The term of those in the first class, beginning in 1789, expired in 1791, and the term of their successors expired six years afterwards. The term of the second class beginning in 1789, expired in 1793, and that of their successors six years later. The members of the original third class were appointed for six years. This classification is still kept up. At present there are thirty senators in each class, the term of those in the first class expiring on the 3rd March, 1909; in the second, on the 3rd March, 1911; and in the third, who will make their first appearance in the Senate at the opening of the Sixtieth Congress in December of this year, on the 4th March, 1913. When a new state is added to the Union, senators first appointed by it cannot be sure of a full term of six years, as they must be assigned by two of

the three classes, in order to keep them as nearly equal as possible, the class to which each of such senators shall belong being settled by ballot; but after the first assignment the full term of six years is granted to senators coming from a new state.

It is worth nothing that the biennial renewal of a third of the Senate coincides with the meeting of a newly-eleced House of Representatives.

Senators' Qualifications.

The qualifications required by the constitution from a candidate for the post of senator are that he has attained the age of 30, has been a citizen of the United States for nine years, and, at the time of election, is an inhabitant of that state for which he is standing.

Election of Senators.

As regards the election of senators, the constitution lays down that the senators from each state shall be "chosen by the Legislature thereof." The actual method of such elections is formulated in the Revised Statutes (Title II, chapter I, section 15) as follows:—

> "Each House shall openly, by a *viva voce* vote of each member present, name a person for senator in Congress, and the name of the person so voted for who receives a majority of the whole number of votes cast shall be entered on the Journal of that House. . . On the day following . . . the members of the two Houses shall convene in Joint Assembly, and the Journal of each House shall then be read, and if the same person has received a majority of all the votes in each House, he shall be declared duly elected senator; but if the same person has not received a majority of the votes in each House . . . the Joint Assembly shall then proceed to choose, by *viva voce* vote of each member present, a person for senator, and the person, who receives a majority of all the votes. . . shall be declared duly elected. If no person receives such majority on the first day, the Joint Assembly shall meet . . . each succeeding day during the session of the Legislature, and shall take at least one vote until a senator is elected.

Should a vacancy occur at any time when the State Legislature is not in session, the Governor of the state has the power to fill it up until the next meeting of the Legislature.

The aim of the framers of the constitution in providing that the Legislatures, and not the people, should choose the members of the Senate was not only to create a Chamber less directly dependent on the popular vote than the House of Representatives, but also to ensure that the Senate should represent the various State Governments. The plan adopted used to excite the admiration of foreign observers. It is doubtful, however, whether the object aimed at has been perfectly attained, and much criticism has been directed of late years against the mode of senatorial elections. Certainly in some states this method of indirect election has become almost as much a formality as the provisions of the constitution regarding the presidential election. So much so is this the case that there has existed for some time a movement, which would seem to be growing in strength of late, that has for its object the amending of the constitution so as to provide for the direct election of senators by the people. Whether this movement will become strong enough to bring about a change, it is, of course, impossible to foretell. Amendments to the federal constitution for this purpose have, it is true, at various times been submitted to one or other of the Houses of Congress, but the difficulties of carrying any constitutional amendment are

recognized to be almost insuperable. It should be noted, however, that petitions have been addressed to Congress from thirty-one, if not more, states—more than the two-thirds required by the constitution for the sanctioning of an amendment—asking for the submission of an amendment to secure the election of senators by direct vote of the people.

There are, or have been, two different systems by which it has been attempted to render the power of the States Legislatures to elect senators merely nominal. In earlier years the will of the people was often expressed by party state conventions. A notable instance was in 1858, when the Illinois State Democratic convention endorsed Mr. Douglas, and the Republican convention endorsed Abraham Lincoln, for the position of United States' senator. The more modern system is that of primary elections, in which the opinion of the voters of each political party is directly expressed in favour of aspirants previously nominated by party meetings, the State Legislatures simply registering the result of the elections. This system is now in vogue in at least eighteen states, Nevada having been the pioneer, by the enactment, in 1899, of an Act entitled "An Act to secure the election of United States' senators in accordance with the will of the people . . .". In some states, particularly in the Southern States, where one political party is in almost complete control, the system has been put into force through the state committees of the party; in others, recourse has been had to legislation, as in Oregon, the two Dakotas, Missoouri, Illinois and others where primary elections are provided for by statute. Mississippi, by an Act of 1903, abolished all nominating conventions, and provided for the nomination of all elective officials, including United States' senators, by direct primaries. In some states, South Carolina and North Dakota for instance, legislators are subjected by statute to a pledge to abide by the primary elections. By the Oregon law of 1904 candidates for the Legislature are required to sign a pledge that they will, or will not, vote for the senatorial candidate who receives the highest popular vote in the primary. That this system is the most favoured at present is shown by the fact that the last House of Representativss of Pennsylvania passed a Bill to that effect by unanimous vote (though this Bill has not been adopted by the Senate of that state), and by the inclusion of a provision for primary elections in the as yet unratified constitution of the proposed new state of Oklahoma.

In all these cases, of course, candidates are the official selections of the political parties. The state of Nebraska, by its constitution of 1875, endeavoured to put the initiative directly into the hands of the electors, by providing that "the electors may, by ballot, express their preference for some person for the office of United States' senator." This system has, however, not proved satisfactory in the working, and has not been followed by any other state. It may be that the electors, while ready to vote for candidates put forward by their respective parties, and whose names appear on the ballot papers, are reluctant to take upon themselves the responsibility of writing on the ballot paper their own personal selection for the post of senator.

In those states, where the method above described is not in vogue, the "caucus" system prevails. Under this system, which accords more with the provisions of the constitution than does that of primary elections, the political party controlling a majority of the two Houses of the State Legislature meets in joint caucus and selects a candidate whom the whole party is pledged to support.

The necessity for a senatorial candidate to obtain a majority of all the votes in the State Legislature has, it should be added, led to many a delay in cases where there have been several aspirants, none of whom commanded the necessary number of votes. It is not unusual for a state to remain unrepresented for a very considerable time, until the deadlock is removed by the partisans of one or more of the candidates finally throwing in their lot with one of the other parties.

Salaries, etc.

The salary paid to senators has varied from time to time, and stands now at 7,500 dollars (£1,500 approximately) a year. They receive in addition a compensation for travelling expenses to and from their constituencies, calculated on the mileage covered.

No senator may hold any public office under the United States during his term in the Chamber. Under this provision the Administration is not represented in the Senate by Cabinet Ministers or other responsible officials; there are, however, generally one or more senators, standing in intimate though unofficial relations with the Executive, through whom the Administration can express its views.

Powers of the Senate.

The powers of the Senate fall under three heads:—

1. Executive.
2. Judicial.
3. Legislative.

1. The constitution lays down that the President may conclude treaties with other nations only "by and with the advice and consent of the Senate," a majority of two-thirds being necessary. The advice and consent of the Senate are also required as regards appointments of ambassadors, consuls, judges of the Supreme Court, and the higher officials of the United States.

The powers of the Senate in respect to the ratification of all treaties proposed by the Chief Executive have always been important, and have increased in importance since the United States has to a certain extent abandoned its former policy of complete abstention from international politics in other continents but America, and they constitute an effective check on the actions of the Executive Department of the Government, which is concerned with the management of foreign affairs. It is no light task to insure that, in a House divided into two strong parties, and in which the majority is not necessarily on the side of the Executive the principle of any treaty may so recommend itself generally as to obtain ratification by a majority of two-thirds. The determined opposition of but a few senators is all that is required for the formation of a group whose action will lead either to the complete wrecking of a proposed treaty or to the addition of such emendatory articles as may materially alter the scope of the agreement, and render it unacceptable to the other Contracting Power. The chief factor in the situation is the Committee on Foreign Relations, before which all measures relating to foreign affairs must first come up for discussion, and that body, which generally includes some of the ablest members of the Senate, may almost be considered a sort of Second Department of State, or Foreign Office.

The control of the foreign policy of the United States is therefore effectively in the hands of the Senate, which is, it may be added, not less jealous than heretofore of anything which it regards as an attempted curtailment of its rights by the Executive. As an instance of this, one may quote the attitude taken up by the Senate in regard to the proposed Arbitration Treaties during the closing decade of last century; opposition to those measures was defended on the ground that the Senate could not abnegate a power given it by the constitution, and may have been largely prompted by the idea that, by consenting to such treaties, the Senate would cede a certain portion of its rights to the Executive.

The right of approving appointments, vested in the Senate by the constitution is highly valued by that body, which now exerts an effective control over the action of the Executive in selecting persons for the higher federal offices, and not infrequently prevents the President from choosing those whom he may personally prefer.

All discussions respecting treaties and appointments are carried on in secret, so-called executive sessions.

2. "The Senate shall have the sole power to try all impeachments" (section 3 of the constitution). In such cases the accusing party is the House of Representatives, in whom is invested the sole power of impeachment, and for the conviction of the accused a vote of two-thirds of the senators present is necesary. When sitting for such a purpose, they are "on oath of affirmation," and should the impeached person be the President of the United States, the Chamber is under the presidency of the Chief Justice. Judgment in such cases does not extend further than to removal from, and disqualification to hold, office under the United States, but the convicted person is liable to indictment before a legal tribunal.

Resort has but rarely been had to this method of proceeding, the most notable case being that of the impeachment of President Andrew Johnson, which resulted in an acquittal, less than two-thirds having voted to convict.

3. In respect of their legislative functions, the Senate and the House of Representatives are inter-dependent and possess equal powers. Bills may originate in either Chamber, but acquire the force of the law only upon obtaining the assent of the other House, and the approval of the President.

Where each chamber has equal legislative powers, and may either reject in its entirety a Bill proposed by the other, or add to it amendments which may not be acceptable to the House where the measure originated, frequent disagreements must be expected. No provision is laid down in the constitution to govern such cases, but the practice of Congress is to settle differences by conferences between members representing each House. The system adopted is, briefly, the following:—

The House of Representatives has, for instance, passed up to the Senate a Bill, which is returned by the latter Chamber with amendments attached. The House may then either approve the Bill in its amended state, or else send it back to the Senate, disagreeing with the proposed amendments, and adhering to its own view. Should the Senate not alter its decision and accept the view of the House, the former will proceed to insist upon its amendments and propose a conference. Each House then appoints three of its members, and these six constitute a conference committee. Should the committee fail to agree, another conference is usually asked for and arranged; should it, however, reach an agreement, a report is drawn up, which is presented by the conference to their respective Houses. The committee's report, which, as might be expected, generally takes the form of a compromise, is then discussed by each House, and may be either approved or rejected, but not amended.

Continued disagreement leads to the extinction of the measure at the end of the Congress.

It may safely be said that this has so worked in practice as not to involve the loss of any large percentage of Bills, the two Houses usually sinking their minor differences when an important measure is at stake. The criticism is, however, often made that the numerous debates, unavoidable under this system, are apt to entail annoying delays. On the other hand, it would be hard to find a plan which could more effectively safeguard the rights of both Houses and obviate the dangers of deadlocks, so often an unfortunate feature of the bi-cameral system.

It should be noted that constitutional disputes between the two Houses of Congress are avoided by the fact that all questions relating to the interpretation of the Constitution are, whenever they arise in legal proceedings, determined by the national courts of law, with the Supreme Court of the United States as the final Court of Appeal, and that neither House of Congress would think of contesting the soundness of a judgment pronounced by the courts. The powers of Congress are strictly defined by the constitution, an instrument in virtue of which alone Congress exists, and whose provisions may not be contested or exceeded by the Legislature. That body has not, therefore, the right to claim to determine the interpretation of the Constitution, which is a matter for the judicial tribunals of the land to decide. One House may, of course,

propose a measure which, in the opinion of the other Chamber, in unconstitutional; the ensuing disagreement is then referred to a conference between the two Houses in the manner above described, when the question at issue may either be amicably settled or dropped entirely. Should the measure be passed by Congress and approved by the President, it is yet liable to be declared unconstitutional by a federal court on any particular case arising under the Act being brought up for legal adjudication.

Financial Powers.

It has been stated above that Bills may originate in either House of Congress. One exception is, however, made in the constitution, namely, that " all Bills for raising revenue shall originate in the House of Representatives, but the Senate may propose or concur with amendments as on other Bills."

In considering the question as to what control the Senate is able, under this provision, to exert over the national finances, the general powers of Congress in this respect, as opposed to those of the Executive Departments, must not be forgotten. The Secretary of the Treasury does, it is true, furnish Congress annually with a statement of the national revenue and expenditure, and he also lays before the Legislature estimates for the coming year. The great power of Congress, however, arises from the fact that the Cabinet Minister's estimates are not necessarily taken as a guide in fixing the sums to be raised and to be allotted to the different Government Departments. Congress, or rather its Finance Committees, can summon the Secretary of the Treasury to give evidence, but the Legislature is unfettered by the presence in its Assembly of a Cabinet Minister armed by the Government with definite financial proposals. The national finances being thus under the sole control of Congress, and, of the two Chambers which compose that body, the House of Representatives having the privilege of originating all Bills for raising revenue, the actual powers of the Senate in this connection remain to be considered.

Of the right to propose amendments to financial Bills received from the House, the Senate avails itself freely. The procedure followed with regard to such Bills is that adopted in respect to all other measures; as soon as they are received by the Senate they are immediately referred to the Finance Committees for consideration, whence they emerge with the addition of amendments, and come up for general discussion. The committees' amendments may be accepted or not; in any event, further amendments may be added, and the Bills are returned to the House of Representatives bearing effectively the imprint of the Senate. Then follow generally disagreement on the part of the House, a conference, and the final passing of a compromise measure.

The following tables are interesting in this connection, as showing, with regard to each of the regular Appropriation Bills passed by the last two Congresses, the amount of each Bill as it passed the House of Representatives, the amount as it passed the Senate, and the amount as it became a law.

58TH CONGRESS, 1ST SESSION.

Title of Bill.	Passed House.	Passed Senate.	Law 1904-1905.
	$ cts.	$ cts.	$ cts.
Agriculture	5,711,240 00	6,072,380 00	5,902,040 00
Army	75,089,957 88	77,819,131 76	77,070,300 88
Diplomatic and Consular	1,995,800 69	2,073,100 69	2,020,100 69
District of Columbia	10,194,477 60	11,382,904 00	11,018,540 00
Fortification	7,131,192 00	8,163,292 00	7,518,192 00
Indian	7,642,192 35	10,511,405 73	9,447,961 40
Legislative, etc	28,288,655 22	28,734,533 22	28,558,258 22
Military Academy	955,579 26	975,966 84	973,947 26
Navy	97,524,540 94	99,039,434 59	97,505,140 94
Pension	138,150,100 00	138,360,700 00	138,360,700 00
Post Office	170,376,088 75	173,550,398 75	172,545,998 75
River and Harbour	3,000,000 00	3,100,000 00	3,000,000 00
Sundry, Civil	56,248,306 11	58,906,400 15	57,840,211 34
Total	602,308,130 20	618,689,647 73	611,761,391 48
Urgent Deficiency	11,026,195 17	16,390,458 24	16,102,157 64
Deficiency	10,401,620 76	11,491,541 72	10,669,732 54
Total	623,735,946 13	646,571,647 69	638,533,281 66

58TH CONGRESS, 2ND SESSION.

Title of Bill.	Passed House.	Passed Senate.	Law, 1905-1906.
	$ cts.	$ cts.	$ cts.
Agriculture	6,769,710 00	7,027,590 00	6,882,690 00
Army	69,310,821 64	70,749,681 64	70,396,631 64
Diplomatic and Consular	2,107,047 72	2,156,017 72	2,123,047 72
District of Columbia	9,456,474 00	9,941,765 62	9,801,197 62
Fortification	6,747,893 00	6,747,893 00	6,747,893 00
Indian	7,397,446 02	10,309,578 29	7,923,814 34
Legislative, etc	28,758,189 84	29,193,062 06	29,136,752 06
Military Academy	669,233 38	678,158 38	673,713 38
Navy	99,914,359 94	100,339,079 94	100,336,679 94
Pension	138,250,100 00	138,250,100 00	138,250,100 00
Post Office	180,717,413 75	181,047,093 75	181,022,093 75
River and Harbour	17,021,875 41	19,803,156 41	18,181,875 41
Sundry, Civil	65,292,080 66	67,739,350 66	66,813,450 66
Total	632,412,635 36	643,982,527 47	638,289,959 52
Urgent Deficiency	247,000 00	262,500 00	262,500 00
Deficiency	31,236,082 04	29,784,466 82	31,420,788 72
Total	663,895,717 40	674,029,494 29	669,973,228 24

SESSIONAL PAPER No. 246

59TH CONGRESS, 1ST SESSION.

Title of Bill.	Passed House.	Passed Senate.	Law, 1906-1907.
	$ cts.	$ cts.	$ cts.
Agriculture	7,481,440 00	7,847,700 00	9,930,440 00
Army	68,664,480 38	73,042,306 37	71,817,165 08
Diplomatic and Consular	2,731,969 17	3,156,094 17	3,091,094 17
District of Columbia	8,883,173 15	9,009,961 16	10,138,672 16
Fortification	4,838,993 00	5,278,993 00	5,053,993 00
Indian	8,109,369 63	10,376,542 64	9,260,599 98
Legislative, etc	29,310,193 30	29,815,559 30	29,681,919 30
Military Academy	1,663,115 17	1,669,427 67	1,664,707 67
Navy	100,609,633 27	103,117,670 27	102,091,670 27
Pension	140,245,500 00	140,245,500 00	140,245,500 00
Post Office	191,487,568 75	192,485,868 75	191,695,998 75
River and Harbour			
Sundry, Civil	94,587,070 32	102,591,184 32	98,589,770 32
Total	658,612,506 14	678,636,807 65	673,210,530 70
Isthmian Canal Deficiency	11,000,000 00	11,000,000 00	11,000,000 00
Urgent Deficiency	15,211,737 44	16,459,799 99	16,270,332 09
Urgent Deficiency, additional	136,646 42	317,425 51	274,925 51
Deficiency	10,864,959 95	11,597,498 68	11,583,777 85
Total	695,825,849 95	718,011,531 83	712,339,566 15

59TH CONGRESS, 2ND SESSION.

Title of Bill.	Passed House.	Passed Senate.	Law, 1907-1908
	$ cts.	$ cts.	$ cts
Agriculture	8,108,010 00	9,457,810 00	9,447,290 00
Army	72,291,876 89	81,787,610 51	78,634,582 75
Diplomatic and Consular	3,085,477 72	3,071,277 72	3,092,333 72
District of Columbia	10,037,234 63	10,766,562 63	10,440,598 63
Fortification	5,411,8-3 80	7,453,589 00	6,898,011 00
Indian	8,233,476 33	12,876,110 76	10,125,076 15
Legislative, etc	30,630,383 80	30,847,533 80	32,126,333 80
Military Academy	1,913,983 42	1,947,383 42	1,929,703 42
Navy	95,027,481 50	101,108,007 50	98,958,507 50
Pension	137,734,000 00	146,143,000 00	146,143,000 00
Post Office	209,716,802 00	212,234,393 00	212,091,193 00
River and Harbour	35,396,612 00	40,123,908 00	37,108,083 00
Sundry, Civil	104,531,314 13	115,416,161 30	110,769,211 30
Total	722,118,535 42	778,233,347 67	757,763,924 27
Urgent Deficiency	581,500 00	581,500 00	581,500 00
Urgent Deficiency, additional	264,650 00	1,329,650 00	1,329,650 00
Deficiency	9,918,698 74	11,262,375 36	10,497,848 91
Total	732,883,384 16	786,406,873 03	770,172,923 18

A glance at these tables will show that nearly every Appropriation Bill was returned to the House of Representatives with considerable amendments by the Senate, the amount proposed by the House remaining unaltered in only five cases.

Secondly, it will be seen that the Senate amendments in the overwhelming majority of cases were directed towards increasing the amount of appropriations.

Thirdly, a comparison of the amounts finally approved and those originally voted by the two Houses is distinctly in favour of the Senate, the amount voted by compromise measure being in most cases nearer to the figure proposed by the Senate than to that fixed by the House.

Lastly, the many Deficiency Bills which were found to be necessary might seem to prove the wisdom of the higher appropriations proposed by the Senate, but it may be presumed that, in some cases at least, the deficiency was due to expenditure which could not be foreseen.

It is clear, therefore, that the advantage resting with the House of Representatives, in virtue of its privilege of originating financial Bills, is effectively counterbalanced by the free exercise of the Senate's right to amend such measures. That the two Houses of Congress jointly have supreme control over the national finances, and are less fettered in that respect by the policy of the Administration than most European Legislatures, is certain. The question as to which House of the two has the greater power is not so easily decided, and must be considered in connection with the larger question as to the relations between the two Houses generally.

Relations between the two Houses of Congress.

The constitution undoubtedly aimed at the creation of a bi-cameral Legislature, which the two Houses, except for the executive and judicial rights vested in the Senate, and for the privilege of initiating financial measures given to the House of Representatives, should enjoy equal powers in every respect, and the question naturally arises how far this aim has been attained in practice. Granted that the constitutional powers of the two Houses are equal, it remains to be considered whether either Chamber possesses advantages over the other such as are conferred by a longer term of office, a more convenient size, or the presence in its ranks of more experienced and influential legislators.

On examining the constitution and actual composition of the two Houses it will be seen that all these three advantages rest with the Senate:—

Firstly, the House of Representatives, with its short life of two years, is at a disadvantage when opposed to a comparatively permanent body like the Senate. The effect produced by this disparity in length of term is particularly noticeable towards the end of a session, when Congress stands face to face with disagreements between the two Houses in respect of contentious measures, including, perhaps, Appropriation Bills, the passage of which is necessary for the due carrying on of Government. Persistence in disagreement would lead to the extinction of the measures at the close of the Congress. This eventuality is, however, not contemplated by senators and members of the House of Representatives from the same point of view. The Senate as a body can face with comparative equanimity the temporary failure of a Bill, knowing that it will shortly have to deal with a newly elected House of Representatives, which may prove more amenable; also, the great majority of senators, whose terms of office have yet two or four more years to run after the close of the actual Congress, are not affected, as are the members of the House at the end of the first session of a Congress, by the prospect of facing new elections. In this connection, therefore, the Senate possesses a distinct advantage over the House, and even were all other conditions equal, the former body would, in the very nature of things, be generally able to wear out the latter.

In the second place, the difference in numbers between the two Houses—90 senators as against 386 representatives—is a factor in favour of the Senate, the

House of Representatives being a more weakly-organized body as compared with the other Chamber whose smaller size gives it a certain compactness and solidarity, Senators have greater opportunities of debate, and are able to devote more attention, both individually and as a body, to the measures coming before them, as compared with the representatives, in whose Chamber most of the work is done by the numerous committees and not by the House as a whole. The gain to the Senate in this respect is, perhaps, not so much practical as moral, but it is none the less real, and lends a certain weight to its decisions.

Lastly, the Senate does largely attract into its ranks the best political talent that the nation produces. The leading members of the State Legislatures, State Governors, and prominent politicians generally, all look to a seat in the United States Senate as their ultimate goal. Nor does the Senate exercise any less attraction on members of the House of Representatives, nearly forty of those composing the Senate in the recently expired fifty-ninth Congress having once been members of the other Chamber. A glance at the biographical notices of senators in the "Congressional Directory" is sufficient to show the great range of experience in public affairs possessed by the members of that body, the number of those who have neither sat in State Legislatures nor held state or federal office being exceedingly small.

That the office of senator should be greatly sought after is the natural consequence of the more extensive constitutional powers of that Chamber, and the personal prestige which the longer term of office and the greater opportunities of individual distinction confer, as compared with the House of Representatives. The House does not enjoy the executive rights so highly prized by senators; the assent of representatives is not necessary to the ratification of a treaty, nor are their powers of patronage as great as those exercised by members of the other House. Secondly, personal pre-eminence, both in Congress and in the eyes of the nation, is not easily attained in a House of nearly 400, especially under a system by which the individual members are fully occupied by their work in the committees, whose proceedings, besides being limited to one particular branch of business, are private and are not published in the press. A senator, on the other hand, is only one among ninety; he is better able to know and to be known by his colleagues. If a novice, he has at the very least six years before him in which to gain parliamentary experience and to make his mark, as against the two years of the representative; his committee work, though considerable, yet leaves him time to avail himself of the greater opportunities of distinguishing himself in debate, afforded by the smaller size of the House and the absence of the time restriction on speeches which has necessarily to be imposed on the more numerous representatives. The greater personal distinction that the senator enjoys, as compared with the representative, makes it generally easier for him to secure re-election at the end of his term. More than half of the senators who sat in the fifty-ninth Congress were, according to the "Directory," serving their second term of office, and even allowing for those whose first term did not extend to the full six years, owing to their having been primarily elected to fill vacancies, it may be said that on an average nearly half of the senators serve at least two terms, that is, twelve years. A representative's term, being two years, it would be necessary for him to be elected six times in order to attain to the same length of service; only sixty-three representatives, however, out of the 386 composing the last House, had succeeded in doing so. The parliamentary experience which senators bring with them on joining that Chamber is shown by the fact that, out of the forty senators who were serving their first term in the last Congress, nineteen had been formerly members of the House of Representatives, and had sat in that House for periods varying from one to nine Congresses.

For these reasons, then, the Senate may be considered to be a more powerful body than the House of Representatives, its comparative permanence enabling it to hold out by its opinions longer than the more ephemeral House, and the recognized political experience of its members lending it superior prestige with the people at large. This

superiority does not, however, by any means allow the Senate entirely to override the other Chamber, nor is it so marked as to have made the House at any time undertake what may be called a political campaign to have the powers of the other House reduced. The present system under which senators are elected being ultimately, though indirectly, popular, makes it difficult to accuse them of being a non-representative body, much of their strength lying in the fact that they are so elected and have the weight of great communities behind them.

Such attacks as are made upon that body—and these have of late years been numerous—come from outside, and are prompted by a feeling of dislike to the position it holds, and a distrust of the motives by which many of its members are alleged to be actuated. To express an opinion, however, upon the merits of the changes proposed, to discuss the question whether the Senate has, or has not, encroached upon the powers of the Executive, to examine the charges now frequently brought against the Senate of being affected by plutocratic tendencies, all of these matters are of a nature too controversial and too much involved with current politics to be proper for a report of this nature.

WILLIAM SEEDS.

October 5, 1907.

BRITISH COLONIES (LEGISLATURE).

RETURN showing for each Legislature in the Self-governing Dominions:—

(1) The composition of the Second Chamber and the method of nomination or election; (2) to powers or disabilities with regard to:—

(*a*) Finance, and
(*b*) General legislation.

(3) The provisions, if any, for the adjustment of the differences which may arise between the two Chambers with regard to:—

(*a*) Finance, and
(*b*) General legislation.

THE DOMINION OF CANADA.

Under the British North America Act, 1867, and amending legislation, the Senate of the Dominion of Canada consists of 87 members, of whom 24 represent Ontario, 24 represent Quebec, 10 represent Nova Scotia, 10 represent New Brunswick, 4 represent Prince Edward Island, 3 represent British Columbia, 4 represent Manitoba, 4 represent Saskatchewan, and 4 represent Alberta.

The senators are summoned by the Governor-General in the King's name by instrument under the Great Seal of Canada and hold their places for life.

The qualifications of a senator are as follows:—

(1) He shall be of the full age of 30 years;

(2) He shall be either a natural-born subject of the King or a subject of the King naturalized by an Act of the Parliament of Great Britain, or of the Parliament of the United Kingdom of Great Britain and Ireland, or of the Legislature of one of the provinces of Upper Canada, Lower Canada, Canada, Nova Scotia, or New Brunswick, before the Union, or of the Parliament of Caanada after the Union;

(3) He shall be legally or equitably seized as of freehold for his own use and benefit of lands or tenements held in free and common socage, or seized or possessed for his own use and benefit of lands or tenements held in Franc-alleu or in Roture, within the province for which he is appointed, of the value of four thousand dollars over and above all rents, dues, debts, charges, mortgages, and incumbrances due or payable out of or charged on or affecting the same;

(4) His real and personal property shall be together worth four thousand dollars over and above his debts and liabilities;

(5) He shall be resident in the province for which he is appointed;

(6) In the case of Quebec he shall have his real property qualification in the electoral division for which he is appointed, or shall be resident in that division.

A senator may, however, resign; and his place shall be become vacant in any of the following cases:—

(1) If for two consecutive sessions of the Parliament he fails to give his attendance in the Senate;

(2) If he takes an oath or makes a declaration or acknowledgment of allegiance, obedience or adherence to a foreign Power or does an act whereby he becomes a subject or citizen, or entitled to the rights or privileges of a subject or citizen, of a foreign Power;

(3) If he is adjudged bankrupt or insolvent, or applies for the benefit of any law relating to insolvent debtors, or becomes a public defaulter;

(4) If he is attainted of treason or convicted of felony or of any infamous crime;

(5) If he ceases to be qualified in respect of property or of residence; provided, that a senator shall not be deemed to have ceased to be qualified in respect of residence by reason only of his residing at the seat of the Government of Canada while holding an office under that Government requiring his presence there.

2. It is provided by section 53 of the British North America Act that "Bills for appropriating any part of the public revenue, or for imposing any tax or impost, shall originate in the House of Commons." There is no other provision limiting the power of the Senate with regard either to finance or to general legislation.

3. The British North America Act does not contain any provision expressly stated to be intended to be for the adjustment of differences between the Senate and the House of Commons whether with regard to finance or to general legislation. But it is provided by section 26 that "if at any time, on the recommendation of the Governor General, the King thinks fit to direct that three or six members to be added to the Senate, the Governor General may, by summons to three or six qualified persons, as the case may be, representing equally the three divisions of Canada, add to the Senate accordingly." The three divisions referred to are Ontario; Quebec; the Maritime Provinces, viz., Nova Scotia, New Brunswick, and Prince Edward Island. Section 27 provides that "in the case of such addition being at any time made, the Governor General shall not summon any person to the Senate except on a further like direction by the King on the like recommendation, until each of the three divisions of Canada is represented by twenty-four senators and no more."

QUEBEC.

Under the Provincial Constitution Acts the Legislative Council of Quebec consists of 24 members who hold their seats for life, and who are appointed by the Lieutenant-Governor by instrument under the Great Seal of the province, one for each of the 24 divisions of the province.

No person can be a Legislative Councillor who holds an office of profit under the Crown in the province, except a ministerial office, or who undertakes or executes or has directly or indirectly any contract with the Provincial Government under which money is to be paid. This does not apply to a man who is merely a shareholder in an incorporated company, with the exception of a company having the execution of any public works.

2. The only provision affecting the powers of the Legislative Council is that contained in section 53 of the British North America Act, which is applied by section 90 to the provinces, and which provided that "Bills for appropriating any part of the public revenue or for imposing any tax or impost shall originate" in the Lower House.

3. No provision exists for the adjustment of differences between the two Chambers of the Legislature of Quebec.

NOVA SCOTIA.

Under the Provincial Constitution Acts the Legislative Council of Nova Scotia consists of 21 members nominated for life by the Lieutenant-Governor in Council. No person can be appointed who is a member of the Federal Parliament, or holds certain specified offices under the Provincial Government, or is declared by the judgment of a court of competent jurisdiction to be disqualified from being elected to or sitting in the House of Commons of Canada by reason of any violation of the law of Canada relating to elections or to the trial of controverted elections, so long as such disqualification lasts. A seat is vacated by two sessions' consecutive absence from the Council without the consent of the Lieutenant-Governor in Council.

2. The only provision affecting the powers of the Legislative Council is that contained in section 53 of the British North America Act, which is applied by section 90 to the provinces, and which provides that Bills for appropriating any part of the public revenue or for imposing any tax or impost shall originate in the Lower House.

3. No provision exists for the adjustment of differences between the two Chambers of the Legislature of Nova Scotia.[1]

NEWFOUNDLAND.

The Legislative Council of Newfoundland consists of members nominated and appointed by the King under the Sign Manual and Signet, or provisionally appointed by the Governor and afterwards confirmed by His Majesty. The total number of the said Legislative Council for the time being resident within Newfoundland shall not at any time by such provisional appointments be raised to a greater number on the whole than 15. The number of members who can be appointed by His Majesty is not limited in any way, and at present the Council contains 21 members. Every member holds his place during the King's pleasure and may be removed by any instruction or warrant issued by His Majesty under the Sign Manual and Signet, and with the advice of the Privy Council.

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[1] NOTE.—There are no second Chambers in the other Canadian Provinces.

2. By No. 249 of the Rules of the House of Assembly adopted at the first session of the 16th Assembly and amended in the fifth session of the said Assembly, it is provided that "all aids and supplies and aids to His Excellency in Legislature are the sole gifts of the Assembly; and all Bills for the granting of any such aids and supplies ought to begin with the Assembly; and it is the undoubted and sole right of the Assembly to direct, limit, and appoint in such Bills the ends, purposes, considerations, conditions, limitations, and qualifications of such grants; which ought not to be changed or altered by the Legislative Council." But the House will not insist on its privileges in the following cases of Bills brought to the House from the Legislative Council, or returned to the House by the Legislative Council with amendments, whereby any pecuniary penalty, forfeiture, or fee shall be authorized, imposed, appropriated, regulated, varied, or extinguished:—

(1) When the object of such pecuniary penalty or forfeiture is to secure the execution of the Act, or the punishment or prevention of offences;

(2) Where such fees are imposed in respect of benefit taken or service rendered under the Act, and in order to the execution of the Act, and are not made payable into the treasury or exchequer, or in aid of the public revenue, and do not form a ground of public accounting by the parties receiving the same, either in respect of deficit or surplus; or

(3) When such a Bill shall be a private Bill. Nor will the House insist on its privileges with regard to any clauses in Private Bills sent down from the Legislative Council which relate to tolls or charges for services performed and are not in the nature of a tax.

3. There is no legislative provision for the settlement of disagreements between the two Houses, whether with regard to matters of finance or other questions. But there is no limitation on the power of the Crown to add to the numbers of the Upper House.

COMMONWEALTH OF AUSTRALIA.

Under the constitution of the Commonwealth the Senate of the Commonwealth of Australia is composed of senators for each state directly chosen by the people of the state voting as one electorate.

Until the Parliament otherwise provides, there shall be six senators for each original state. The Parliament may make laws increasing or diminishing the number of senators for each state, but so that equal representation of the several original states shall be maintained, and that no original state shall have less than six senators. The senators are chosen for a term of six years.

The senator must be of the full age of 21 years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at least a resident within the limits of the Commonwealth as existing at the time that he is chosen. He must be a subject of the King, either natural-born or for at least five years naturalized under a law of the United Kingdom, or of a colony which has become or becomes a State, or of the Commonwealth, or of a State.

"Any person who—

(i) Is under any acknowledgment of allegiance, obedience, or adherence to a foreign Power, or is a subject or a citizen or entitled to the rights or privileges of a subject or a citizen of a foreign Power; or

"(ii) Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of a State by imprisonment for one year or longer; or

"(iii) Is an undischarged bankrupt or insolvent; or

"(iv) Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonweaalth; or

"(v) Has any direct or indirect pecuniary interest in any agreement with the public service of the Commonwealth otherwise than as a member and in common with the other members of an incorporated company consisting of more than 25 persons;

"shall be incapable of being chosen or of sitting as a senator."

"But subsection iv does not apply to the office of any of the King's Ministers of State for the Commonwealth, or of any of the King's Ministers for a State, or to the receipt of pay, half-pay, or a pension by any person as an officer or member of the King's navy or army, or to the receipt of pay as an officer or member of the naval or military forces of the Commonwealth by any person whose services are not wholly employed by the Commonwealth."

The qualification of electors is extended to adult British subjects of either sex who have lived in Australia for six months continuously. Aboriginal natives of Australia, Asia, Africa, or the islands of the Pacific except New Zealand, cannot vote at Federal elections unless they have acquired a right to vote at elections for the Lower House of a State Parliament. Each elector has only one vote.

2. The powers of the Senate with regard to finance are restricted by section 53 of the constitution as follows:—

"Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate, but a proposed law shall not be taken to appropriate revenue or moneys, or to impose taxation, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand or payment or appropriation of fees for licences, or fees for services under the proposed law.

"The Senate may not amend proposed laws imposing taxation, or proposed laws appropriating revenue or moneys for the ordinary annual services of the Government.

"The Senate may not amend any propose law so as to increase any proposed charge or burden on the people.

"The Senate may at any stage return to the House of Representatives any proposed law which the Senate may not amend, requesting, by message, the omission or amendment of any items or provisions therein; and the House of Representatives may, if it thinks fit, make any of such omissions or amendments, with or without modifications.

It is also provided that laws which appropriate revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriation; that laws imposing taxation shall deal only with the imposition of taxation, and any provision therein dealing with any other matter shall be of no effect.

Laws imposing taxation, except laws imposing duties of Customs or of Excise, shall deal with one subject of taxation only; but laws imposing duties of Customs shall deal with duties of Customs only, and laws imposing duties of Excise shall deal with duties of Excise only.

In all other matters except those mentioned in section 53 of the constitution, the Senate has equal power with the House of Representatives.

3. There are no special provisions for the adjustment of differences which may arise between the Senate and the House of Representatives with regard to Finance. In any case of difference, the procedure laid down in section 57 of the constitution applies.

"If the House of Representatives passes any proposed law, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, and if after an interval of three months the House of Representatives, in the same or the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor General may dissolve the Senate and the House of Representatives simultaneously. But such dissolution shall not take place within six months before the date of the expiry of the House of Representatives by effluxion of time.

"If after such dissolution the House of Representatives again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor General may convene a joint sitting of the members of the Senate and of the House of Representatives.[1]

"The members present at the joint sitting may deliberate and shall vote together upon the proposed law as last proposed by the House of Representatives, and upon amendments, if any, which have been made therein by one House and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives shall be taken to have been carried; and if the proposed law, with the amendments, if any, so carried is affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives, it shall be taken to have been duly passed by both Houses of the Parliament, and shall be presented to the Governor General for the King's assent."

Special provision is made for the case of differences between the two Houses, with regard to the amendment of the Constitution, by section 128 of the Constitution, which is as follows:—

"This Constitution shall not be altered except in the following manner:—

"The proposed law for the alteration thereof must be passed by an absolute majority of each House of the Parliament, and not less than two nor more than six months after its passage through both Houses, the proposed law shall be submitted in each state to the electors qualified to vote for the election of members of the House of Representatives.

"But if either House passes any such proposed law by an absolute majority, and the other House rejects or fails to pass it, or passes it with any amendment to which the first-mentioned House will not agree, and if after an interval of three months the first-mentioned House in the same or the next session again passes the proposed law by an absolute majority with or without any amendment which has been made or agreed to by the other House, and such other House rejects or fails to pass it, or passes it with any amendment to which the first-mentioned House will not agree, the Governor General may submit the proposed law as last proposed by the first-mentioned House, and, either with or without any amendments subsequently agreed to by both Houses, to the electors in each State qualified to vote for the election of the House of Represntatives.[2]

"When a proposed law is submited to the electors the vote shall be taken in such manner as the Parliament prescribes. But until the qualification of

[1] Under the constitution, the number of members of the House of Representatives, must be as nearly as possible, double that of the Senate. At present the Senate has 36, the House of Representatives 75 members.

[2] At present the electorate for the Senate and the House of Representatives is the same; but if there is any difference, the electorate for the Lower House will be that to which the law is referred.

electors of members of the House of Representatives becomes uniform throughout the Commonwealth[1], only one-half the electors voting for and against the proposed law shall be counted in any state in which adult suffrage prevails.

"And if in a majority of the states a majority of the electors voting approve the proposed law, and if a majority of all the electors voting also approve the proposed law, it shall be presented to the Governor General for the Queen's assent.

"No alteration diminishing the proportionate representation of any state in either House of the Parliament, or of the minimum number of representatives of a state in the House of Representatives, or increasing, diminishing, or otherwise altering the limits of the state, or in any manner affecting the provisions of the constitution in relation thereto, shall become law, unless the majority of the electors voting in that state approve the proposed law."

NEW SOUTH WALES.

Under the Constitution Act of 1855, and amending Acts, the Legislative Council of New South Wales consists of persons unlimited in number—at present under 60—summoned by the Governor by instrument under the Great Seal of the State.

A legislative councillor must be of the full age of 21, and a natural-born subject of His Majesty, or naturalized in Great Britain or in New South Wales, and must not be a public contractor except as member of a company exceeding twenty persons in number, or a member of either House of the Federal Parliament. No less than four-fifths of the members so summoned shall consist of persons not holding any office of emolument under the Crown; but officers of His Majesty's sea and land forces on full or half-pay, and retired officers on pensions, shall not be deemed to be persons holding an office of emolument under the Crown within the meaning of this section.

Members of the Legislative Council hold their seats for the term of their natural lives, but they may resign their seats, and their seats become vacant in the following cases:—

"If any Legislative Councillor:—

(*a*) Fails for two successive sessions of the Legislature to give his attendance in the Legislative Council, unless excused in that behalf by the permission of His Majesty or of the Governor, signified by the Governor to the Legislative Council; or

(*b*) Takes any oath or makes any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign prince or Power; or

(*c*) Does, concurs in, or adopts any act whereby he may become a subject or citizen of any foreign State or Power, or whereby he may become entitled to the rights, privileges, or immunities of a subject or citizen of any foreign State or Power; or

(d) Becomes bankrupt, or takes the benefit of any law relating to insolvent debtors; or

(*e*) Becomes a public contractor or defaulter; or

(*f*) Is attainted of treason, or convicted of felony or infamous crime."

2. The only provision restricting the power of the Legislative Council with regard to legislation is the proviso contained in section 5 of the New South Wales Act, No. 32 of 1902, under which all Bills "for appropriating any part of the public revenue,

[1] This is now the case.

or for imposing any new rate, tax, or impost shall originate in the Legislative Assembly."

3. There are no legal provisions for the adjustment of differences which may arise between the Legislative Council and the Legislative Assembly, whether with regard to matters of finance or to general legislation, but the number of the Upper House is not limited, and the Governor has power to add members to such extent as he thinks fit.

VICTORIA.

The Legislative Council of Victoria consists of 34 members who are elected for 17 provinces, two for each province. Members hold office for six years, but one member for each province retires every third year, unless there is a dissolution of the Council, in which case one-half of the members hold their seats for three years only.

A member must be of the full age of 30 years and a natural-born subject of His Majesty, or who has naturalized for ten years previous to election, and has resided during that period in Victoria. He must also for one year previous to the election have been legally or equitably seized of or entitled to an estate of freehold in possession for his own use and benefit of lands and tenements in Victoria of the annual value of 50*l.* above all charges and incumbrances affecting the same, other than any public or parliamentary tax, or municipal, or other rate or assessment. No person can become a member who is—

(1) A judge of any court of Victoria;
(2) A minister of religion;
(3) Attainted of any treason, or convicted of any felony or infamous offence within any part of His Majesty's dominions;
(4) An uncertificated bankrupt or insolvent;
(5) A public contractor, except in a partnership of more than twenty persons;
(6) A member of the Legislative Assembly; or
(7) Of the Commonwealth Parliament; or
(8) Who is insane; or
(9) A Government officer other than a Minister.

A member may resign his seat, and his seat becomes vacant if he—

(1) Ceases to be possessed of the property qualification; or
(2) Is absent for one entire session without the leave of the Council;
(3) Takes an oath of allegiance to any foreign Power;
(4) Becomes insolvent, attainted of treason, or a public defaulter, or commits a felony;
(5) Becomes insane;
(6) Becomes concerned in a public contract, except as a member of a partnership of more than twenty persons; or
(7) Accepts an office of profit under the Crown, except as Minister or as President of the Council, or Chairman of Committees.

Electors are qualified—

(1) By owning the freehold or being mortgagor or mortgagee in possession, or in the receipt of the rents or profits of property situate in one and the same province rated at not less than 10*l.* a year;

(2) Being lessee or assignee for the unexpired residue of any term originally created for a period of not less than five years, or occupier of property, in one and the same province rated at not less than 15*l.* a year.

(3) Being joint owner, lessee, assignee, or occupier of property sufficient to give each the foregoing qualification;

(4) Being resident in Victoria and a graduate of any university in the British dominions, a matriculated student of Melbourne University, a qualified legal or medical practitioner, a minister of religion, a certificated school-master, or a naval or military officer.

All voters not being natural-born subjects of His Majesty, must have resided in the state for twelve months previous to the 1st of January or the 1st of July in any year, and shall have been naturalized at least three years previously.

The suffrage is possessed by both men and women, but no person is entitled to more than one vote in the same province.

2. It is provided by section 56 of the Bill scheduled to the Imperial Act 18 and 19 Vict., c. 55, that all Bills for appropriating any part of the revenue of Victoria, and for imposing any rate, tax, duty, rent, return, or impost, shall originate in the Assembly, and may be rejected but not altered by the Legislative Council. By section 30 of the amending Victorian Act, No. 1864 of 1903, it is provided as follows:—

(1) A Bill shall not be taken to be a Bill for appropriating any part of the revenue of Victoria or for imposing any duty, rate, tax, rent, return, or impost, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand, or payment, or appropriation of fees for licences, or fees for services under such Bill.

(2) The Council may once at each of the undermentioned stages, of a Bill which the Council cannot alter, return such Bills to the Assembly suggesting by message the omission or amendment of any items or provisions therein. And the Assembly may, if it thinks fit, make any of such omissions or amendments with or without modifications. Provided that the Council may not suggest any omission or amendment the effect of which will be to increase any proposed charge or burden on the people.

(3) The stages of a Bill at which the Council may return the Bill with a message as aforesaid shall be—

(*a*) The consideration of the Bill in committee;

(*b*) The consideration of the report of the committtee; and

(*c*) The consideration of the question that the Bill be read a third time."

3. The following provision is made for disagreements between the two Houses with regard to matters of finance or general legislation by section 31 of the Act, 1864, of 1903:—

"(1) If the Assembly passes any Bill and the Council rejects or fails to pass it, or passes it with amendments to which the Assembly will not agree, and, if not later than six months before the date of the expiry of the Assembly by effluxion of time, the Assembly is dissolved by the Governor by a proclamation declaring such dissolution to be granted in consequence of the disagreement between the two Houses as to such Bill, and the Assembly again passes the Bill with or without any amendments which have been made, suggested, or agreed to by the Council, and the Council rejects or fails to pass it or passes it with amendments to which the Assembly will not agree, the Governor at any time, not being less than nine months nor more than twelve months after the said dissolution, may, notwithstanding anything contained in the Constitution Act, dissolve the Council and the Assembly simultaneously.

"(2) The Council shall be deemed to have failed to pass a Bill if the Bill is not returned to the Assembly within three months after its transmission to the Council and the session continue during such period.

"(3) Any Bill by which an alteration may be made in the constitution of the Council or Assembly or in Schedule D to the Constitution Act (other than such alterations as are referred to in section 61 of the said Act) shall not be within the operation of the foregoing provisions of this section.

"(4) In section 61 of the Constitution Act, after the words 'or increase' there shall be inserted the words 'or decrease.'"

QUEENSLAND.

The Legislative Council of Queensland consists of members unlimited in number —usually between 40 and 50—summoned by the Governor in His Majesty's name by an instrument under the Great Seal of the State.

No person can be summoned who is not of the full age of 21 years and a natural-born subject of His Majesty, or naturalized by an Act of the Imperial Parliament or by an Act of the Legislature of New South Wales before 1859, or by an Act of Queensland. Not less than four-fifths of the members so summoned to the Legislative Council shall consist of persons not holding any office of emolument under the Crown, except officers of His Majesty's sea and land forces on full or half pay or retired officers on pensions. No person who shall directly or indirectly himself, or by any person whatsoever in trust for him or for his use or benefit or on his account, undertake, execute, hold and enjoy in the whole or in part any contract or agreement for or on account of the public service shall be capable of being summoned to the Legislative Council. This does not extend to any contract or agreement made by an incorporated company or trading company consisting of more than twenty members.

Members of Council hold office for life, but a legislative councillor may resign his seat by letter to the Governor, and his seat is vacated if he (1) shall fail for ten successive sessions of the Council to give his attendance without the permission of His Majesty or the Governor; or (2) shall take any oath, or make any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign prince or Power, or shall do, concur in, or adopt any act whereby he may become a subject or citizen of any foreign State or Power, or whereby he may become entitled to the rights, privileges, or immunities or a subject or citizen of any foreign State or Power; or (3) shall become bankrupt or take the benefit of any law relating to insolvent debtors; or (4) become a public contractor or defaulter; or (5) be attainted of treason or convicted of felony or of any infamous crime.

"2. It is provided by section 2 of the Constitution Act, 1867, that all Bills for appropriating any part of the public revenue or for imposing any new rate, tax, or impost shall originate in the Legislative Assembly." The exact force of this clause has formed the subject of a report of the Privy Council on reference from the two Houses in 1886."[1]

3. By an Act, No. 16 of 1908, provision is made for the submission of certain Bills to the electors in the case of differences between the two Houses:—

"3.—(1) For the purposes of this Act a Bill shall be deemed to have been rejected a first time whenever such Bill has, during a session of Parliament, not less than one month before the close of the session been passed by the Legislative Assembly and transmitted to the Legislative Council for its concurrence therein, and the Legislative Council before the close of the session has either—

[1] See (C. 4794).

"(*a*) Rejected or failed to pass such Bill; or

(*b*) Passed such Bill with any amendment or amendments in which the Legislative Assembly does not concur;

and by reason thereof the Bill has been lost.

"(2) For the purposes of this Act such Bill shall be deemed to have been rejected a second time when the Legislative Assembly in the next session of Parliament has, after an interval of not less than three months from the first rejection of the Bill as defined by the last preceding subsection, again passed such Bill (or a Bill substantially the same) and transmitted it to the Legislative Council for its concurrence therein, not less than one week before the close of the session, and the Legislative Council before the close of the session has either—

"(*c*) Rejected or failed to pass such Bill; or

"(*d*) Passed such Bill with any amendment or amendments in which the Legislative Assembly does not concur;

and by reason thereof the Bill has again been lost.

"4.—(1) Whenever a Bill has been twice rejected by the Legislative Council, the Governor in Council may, by proclamation published in the *Gazette* after the close of the session in which the Bill was rejected a second time, direct that the Bill so rejected shall be submitted by referendum to the electors; and a referendum poll shall accordingly be taken thereon under this Act at the time appointed in that behalf. The publication in the *Gazette* of such proclamation shall be conclusive evidence that the Bill as last rejected is the same Bill or substantially the same Bill as the Bill rejected in the session last but one preceding, and has been twice rejected by the Legislative Council.

"2. When a Bill is so directed to be submitted to a referendum, a copy of the Bill, in the form in which it was finally agreed to by the Legislative Assembly, certified as correct by the Speaker of the Legislative Assembly, shall, within twenty-one days after the issue of the said proclamation, be transmitted by the Clerk of the Legislative Assembly to the Home Secretary. Forthwith upon receipt of such copy the Home Secretary shall cause the same to be published in the *Gazette*, together with such amendments as have been made by the Legislative Council and which the Legislative Council may by resolution request to be annexed thereto.

"5. The persons entitled to vote at the taking of the referendum poll shall be the electors and no other persons.

"6.—(1) The Governor in Council may appoint, by commission under his hand and seal, a fit person to be the returning officer for taking the referendum poll under this Act.

"In case of sickness or other cause preventing the returning officer from acting, the Governor in Council may in like manner appoint some other person to act as returning officer in his stead. Notification of the appointment of the returning officer shall be published in the *Gazette*.

"(2) The returning officer, in addition to the powers and duties vested in and imposed upon him by this Act, shall have such of the powers and shall perform such of the duties of a returning officer appointed under the Elections Act as are necessary for carrying this Act into effect.

"(3) Every returning officer appointed under the Elections Act shall be an assistant returning officer for the purposes of this Act, and, in addition to the powers and duties vested in and imposed upon him by this Act, shall have such of the powers and shall perform such of the duties vested in and imposed upon

a returning officer under the Elections Act as are necessary for carrying this Act into effect.

"(4) The writ for the referendum poll shall be directed by the Governor in Council to the returning officer.

"A copy of the writ shall be published in the *Gazette*.

"7.—(1) The mode of exercising the right to vote at a referendum poll and of ascertaining such right shall be the same as at elections of members of the Legislative Assembly.

"And generally (except as may otherwise be provided in this Act, or any regulation made thereunder) every enactment contained in the Elections Act regulating and making provision for the holding and conduct of elections, the proceedings before and at and subsequent to such elections, and all incidental matters shall, so far as applicable thereto, apply *mutâtis mutandis* to the referendum poll to be taken under this Act: Provided that the provisions (if any) of the Elections Act for securing the absolute majority of votes shall not apply.

(2) Every act or omission which would be punishable by law, if the same had occurred in connection with the holding of an election, shall be held to constitute the like offence, cognizable in the like manner, and punishable by the like punishment, if the same occurs in connection with a referendum poll.

"8. Every assistant returning officer shall, in manner provided by the Elections Act, ascertain the number of votes respectively recorded at the referendum poll in favour of and in opposition to the Bill at the various polling places within the electoral district for which he is the returning officer, for which purpose the presiding officer at each such polling place shall make a return (certified by him to be correct) to the assistant returning officer of the number of votes so given respectively at such polling place; and the assistant returning officer shall thereupon forthwith make out and furnish a return for such district (certified by him to be correct) to the returning officer appointed under this Act.

"Every return to be made under this section may be transmitted by telegraphic message or messages under "The Telegraphic Messages Act of 1872."

"9. The total number of votes respectively recorded at the referendum poll in favour of and in opposition to the Bill shall be endorsed upon the writ by the returning officer, who shall forthwith return the writ so endorsed to the Governor.

"The result of the referendum poll so endorsed shall be published by the Home Secretary in the *Gazette* within twenty-eight days from the return of the writ.

"Such publication shall be conclusive evidence of the result of the referendum poll.

"10. If the referendum poll is decided in favour of the Bill, the Bill shall be presented to the Governor for His Majesty's assent, and upon receiving such assent the Bill shall become an Act of Parliament in the same manner as if it had been passed by both Houses of Parliament, and notwithstanding any law to the contrary."

4-5 GEORGE V., A. 1914

SOUTH AUSTRALIA.

The Legislative Council of South Australia consists of eighteen elected members. The State is divided into four Council Districts, of which one returns six members and the other three return four members each to the Legislative Council. The period of their service is regulated by sections 10, 11, and 12 of the South Australian Constitution Amendment Act, No. 959, 1908, which are as follows:—

"10. Subject to the provisions hereinafter contained as to the dissolution of the Legislative Council, every member of the said Council, except a member elected to fill a casual vacancy, shall occupy his seat for the term of six years at least, calculated as from the first day of March of the year in which he was last elected, and for such further period as is provided for in the next succeeding section. Provided nevertheless, if the seat of any member of the Legislative Council becomes vacant by death, resignation, or otherwise before the expiration of his term of service, and a member is returned from the electoral district in which the vacancy occurred, he shall hold office only for the unexpired term of the member whose seat has been vacated as aforesaid, and shall, for the purpose of retirement, be deemed to have been elected at the time when such last-mentioned member was or was deemed to be elected: Provided also that where two or more members are so returned at the same time to fill vacated seats of unequal terms, such terms shall be deemed to be held by the said members according to their position on the poll at their election, and that he who receives the greatest number of votes shall hold the seat which has the longest term to run, and in the event of a tie the matter shall be determined by lot.

"11. Whenever the House of Assembly is dissolved by the Governor, or expires by effluxion of time, so many members of the Legislative Council, not exceeding three for the Central District and two for each of the other districts, as have completed the minimum term of service provided by section 10 shall retire and vacate their seats, and, subject to section 21, an election to supply the vacancies so created shall take place on the day of the next general election of the House of Assembly.

"12. The periodical retirement of members of the Legislative Council under the provisions of the last preceding section shall be determined as follows:—

"(i) The members retiring in each Council District shall be those who have represented such district for the longest time, calculated from the date of their last election;

"(ii) If two or more members have represented the same Council District for an equal time, calculated as aforesaid, the order of retirement as between them shall be determined by their position on the poll at their election, and he or they who had the least number of votes shall retire first. If their position is equal in this respect, or if no poll was taken, the order of retirement between them shall be determined by lot;

"(iii) The Legislative Council shall keep a roll of its members, containing all particulars necessary for the application of the foregoing rules as to their periodical retirement."

A Legislative Councillor must be a man of the full age of 30 years, and a natural-born or a naturalized subject of His Majesty, who has resided within the State for the full period of three years. No person can be elected a member if he owes allegiance to a foreign Power, is a Government contractor, is insane, or has been attainted of treason or convicted of felony or an infamous crime, is an uncertified bankrupt, or is a member of the Federal Parliament.

A seat may be resigned, and the seat is vacated by absence without leave for one month, by bankruptcy, or conviction for treason or felony, and by lunacy.

The franchise for elections to the Legislative Council is possessed by adult British subjects of either sex who are—

(a) Owners of freehold of the clear value of 50*l.*

(b) Owners of leasehold of the clear annual value of 20*l.* with at least three years to run or containing a right to purchase;

(c) Occupiers of a dwelling-house of a clear annual value of 17*l.*.....

(d) Registered proprietors of a Crown lease on which there are improvements to the value of at least 50*l.* Postmasters and postmistresses, police officers in charge of a police station, railway stationmasters, head school teachers who reside in official premises, and officiating ministers of religion are also qualified.

Voters must have been residents for six months prior to being placed on the rolls of the Council.

2. The only provision limiting the power of the Legislative Council with regard to legislation is that contained in the first section of the South Australian Constitution Act, No. 2 of 1855-56, which provides that all Bills for "appropriating any part of the revenue of the said province, or for imposing, altering, or repealing any rate, tax, duty, or impost, shall originate in the House of Assembly."

3. The following provision is made by Act No. 959 of 1908 for the settlement of differences between the two Houses:—

(1) Whenever any Bill for an Act has been passed by the House of Assembly during any session of Parliament, and the same Bill, or a similar Bill with substantially the same objects and having the same title, has been passed by the House of Assembly during the next ensuing Parliament, a general election of the House of Assembly having taken place between such two Parliaments, and the second and third readings of such Bill having been passed in the second instance by an absolute majority of the whole number of members of the said House of Assembly, and both such Bills have been rejected by or fail to become law in consequence of any amendments made therein by the Legislative Council, it shall be lawful for but not obligatory upon the Governor of the said State, within six months after the last rejection or failure, by proclamation to be published in the *Government Gazette,* to dissolve the Legislative Council and House of Assembly, and thereupon all the members of both Houses of Parliament shall vacate their seats, and members shall be elected to supply the vacancies so created; or for the Governor, within six months after such rejection or failure, to issue writs for the election of three additional members for the Central District and of two additional members for each of the other districts of the Legislative Council.

"(2) After the issue of such writs no vacancy, whether arising before or after the issue thereof, shall be filled, except as may be necessary to bring the representation of the district in which such vacancy occurs to its proper number as set forth in First Schedule hereto. Whenever there are more seats vacated by members returned for the same district than are to be filled, and such members' seats were of unequal tenure, the seats of those members the unexpired portions of whose terms are the shorter shall be first filled.

"(3) Upon every such dissolution of the Legislative Council the order of retirement, as between the members elected after such dissolution, shall be as provided in section 12 of this Act; and one half of such members shall retire after three years' service, calculated from the first day of March of the year of their election, or after such further period as is provided for in section 11."

WESTERN AUSTRALIA.

The Legislative Council of Western Australia consists of 30 elected members, who are elected for six years. They are returned for 10 electorates, each returning three members. At the expiration of two years from the date of election, and every two years thereafter, the senior member for the time being retires. Seniority is determined—

(*a*) By date of election;

(*b*) If two or more members are elected on the same day, then the senior is the one who polled the greatest number of votes;

(*c*) If the election be uncontested or in the case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, of Christian names.

A legislative councillor must be a male natural-born or naturalized British ésubject of the age of 30 years or upwards, and—

(*a*) In the case of a natural-born subject, resident in the State for two years; and

(*b*) In the case of naturalized subjects, if naturalized for five years previous to the election and resident in the State during that period. He must not be a Judge of the Supreme Court, Sheriff of Western Australia, a clergyman, an undischarged bankrupt, under attainder of treason or conviction of felony in any part of His Majesty's dominions, or directly or indirectly concerned in any public contracts, save as a member of an incorporated trading society.

Seats in the Legislative Council are vacated in the following instances:—

"If any member of the Legislative Council after his election—

(1) Ceases to be qualified or becomes disqualified as aforesaid; or

(2) Takes the benefit, whether by assignment, composition, or otherwise, of any law relating to bankrupt or insolvent debtors; or

(3) Becomes of unsound mind; or

(4) Takes any oath or makes any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign prince or Power, or does, concurs in, or adopts any act whereby he may become a subject or citizen of any foreign State or Power, or whereby he may become entitled to the rights, privileges, or immunities of a subject or citizen of any foreign State or Power; or

(5) Fails to give his attendance in the Legislative Council for two consecutive months of any session thereof without the permission of the Council entered upon its journals; or

(6) Accepts any pension during pleasure or for term of years other than an allowance under section 71 of "The Constitution Act, 1889," or any office of profit from the Crown, other than that of an officer of His Majesty's sea or land forces on full, half, or retired pay;

his seat shall thereupon become vacant: Provided that members accepting offices liable to be vacated on political grounds shall be eligible for re-election."

The franchise is held by adult British subjects of either sex who have resided in the State for six months, and who either—

(*a*) Own a freehold estate to the value of 100*l.*;

(*b*) Occupy a house or own leasehold property rated at 25*l.*;

(*c*) Hold Crown leases or licenses to the value of not less than 10*l.* per annum; or

(*d*) Are on the electoral list of any municipality or road board district in respect of property of the annual rateable value of 25*l.*

2. It is provided by the Constitution Act of 1890 that all Bills for appropriating any part of the consolidated revenue fund or for imposing, altering, or repealing any rate, tax, duty, or impost shall originate in the Legislative Assembly. In the amending Act of 1899 the following provision is made:—

> "In the case of a proposed Bill, which, according to law, must have originated in the Legislative Assembly, the Legislative Council may at any stage return it to the Legislative Assembly with a message requesting the omission or amendment of any items or provisions therein; and the Legislative Assembly may, if it thinks fit, make such omissions or amendments, or any of them, with or without modifications."

3. There is no legal provision for the case of differences between the two Houses, whether in matters of finance or of general legislation.

TASMANIA.

The Legislative Council of Tasmania consists of 18 members returned from 15 districts, Hobart returning 3, Launceston 2, and the remaining 13 districts sending 1 member each. Each member of the Council holds his seat for six years from the date of his election. Three members retire the first Monday in May every year, except in 1905, and every sixth year thereafter, when four retire.

Members of Council must be male natural-born or five years naturalized British subjects of the age of 30 years or upwards, and must have resided continuously for five years in Tasmania or for at least two years immediately preceding the election. No person is qualified to be a member who has a pension payable during pleasure or holds any office of profit under the Government, except that of a Minister, or who is a Government contractor, unless as a member of an incorporated company of more than six persons, or who owes allegiance to any foreign Power, holds the office of Judge of the Supreme Court, is insane, attainted or convicted of treason, felony, or other infamous offence, or is a member of the Commonwealth Parliament. The following are not deemed offices of profit or emolument: Wardens of Marine Boards, returning officers under the Electoral Act, officers of the Defence Forces of the Commonwealth whose services are entirely employed by the Commonwealth Government, and members of the Board of Land Purchase Commissioners.

A member may resign his seat, and his seat is vacated if he becomes a subject of a foreign Power, is bankrupt or insolvent, becomes a public defaulter, is attainted of treason, or convicted of felony, or of any infamous crime, becomes insane, is absent without leave for an entire session, accepts any office or profit from the Government except a Ministerial office or pension, or contracts for the public service unless a member of an incorporated company of more than six persons.

The electors of the Legislative Council are qualified by being adult subjects, natural born or naturalized of either sex of 21 years of age and upwards, having freehold estate in the electoral district of £10 a year or being the occupier of property of the value of £30 a year, or being a graduate of any university in the British Dominions, a qualified legal or medical practitioner, an officiating minister of religion,

an officer or retired officer of His Majesty's Army or Navy on actual service, or a retired officer of the Volunteer Force of Tasmania.

2. It is provided by section 33 of the Constitution Act, 1855, that all Bills for appropriating any part of the revenue or for imposing any tax, rate, duty, or impost shall originate in the House of Assembly.

3. There is no legal provision for removing differences which may arise between the two Houses of Parliament in Tasmania, whether with regard to financial matters or to general legislation.

NEW ZEALAND.

Under the Legislature Act, 1908, the Legislative Council of New Zealand consists of members unlimited in number summoned for life in the case of persons summoned before 1891, or for seven years, in other cases, by the Governor from time to time in His Majesty's name by instrument under the Public Seal of New Zealand.

No person shall be summoned or shall hold a seat in the Council who is not a male—

(*a*) of the full age of 21 years and either a natural-born subject of His Majesty or a subject of His Majesty naturalized by or under any Act of the Imperial Parliament, or by an Act of the General Assembly of New Zealand, or

" (*b*) Who at any time theretofore has been bankrupt and has not received his discharge, or who has been attainted or convicted of any treason, any crime formerly known as felony, or any infamous offence within any part of His Majesty's Dominions, or as a public defaulter in New Zealand, unless he received a free pardon, or has undergone the sentence or punishment to which he was adjudged in respect thereof, or

" (*c*) Is a member of Parliament, or

"(*d*) Who is a contractor, or

"(*e*) Who is, or within the next preceding six months was, a Civil Servant. This term does not include the persons who are members of the Executive Council, provided that such members do not exceed ten in all, two of which members must be Maories or half-castes), nor the Speaker or Chairman of Committees of the Council, nor officers of His Majesty's Army or Navy, or Militia or Volunteers, except officers of the Militia and Volunteers receiving annual or permanent salaries, nor any persons as members only of any Senate or Council or any University, nor members of a Commission issued by the Governor or Governor in Council.

"'Contractor' is a person who either by himself or directly or indirectly by or with others, but not as a member of a registered or incorporated company or any incorporated body, is interested in the execution or enjoyment of any contract or agreement entered into with His Majesty or with any officer or department of the Government of New Zealand, or with any person for or on account of the public service of New Zealand under which any public money above the sum of £50 is payable directly or indirectly to such person in any one financial year, but does not extend to persons on whom the completion of any contract or agreement devolves by marriage, or as devisee, legatee, executor or administrator until twelve months after he has been in possession of the same; any sale, purchase, or agreement for taking of land or of or for any interest, estate, or easement therein under any law or statute empowering the King or the Governor or any person on his behalf to take, purchase or acquire any lands, or any estate, interest, or easement therein for any public works or for any other public purposes whatsoever; contracts

for the loan of money or securities given for the payment of money only; contracts for advertising by which a sum of over £50 is payable, if the contract is entered into after public tender.

"A 'public defaulter' means a person convicted of wrongfully spending, taking, or using any moneys the property of the Crown or of any local authority or of any corporation represented by a local authority."

Members of the Council appointed since the passing of the Act of 1891 hold office for seven years only, to be reckoned from the date of the instrument of appointment, but they may be reappointed. In the case of any member of the Council, his seat shall *ipso facto* be vacated—

"(*a*) If he takes any oath or makes any declaration or acknowledgment of allegiance, obedience, or adherence, to any foreign Prince or Power; or

"(*b*) If he does, or concurs in, or adopts any act whereby he may become a subject or citizen of any foreign State or Power, or entitled to the rights, privileges or immunities of a subject of any foreign State or Power; or

"(*c*) If he is bankrupt, or compounds with his creditors under any Act for the time being in force; or

"(*d*) If he is a public defaulter, or is convicted of any crime punishable by death or by imprisonment with hard labour for a term of three years or upwards; or

"(*e*) If he resigns his seat by writing under his hand addressed to and accepted by the Governor; or

"(*f*) If for more than one whole session of the General Assembly he fails, without permission of the Governor notified to the Council, to give his attendance in the Council."

2. It is provided by section 54 of the Imperial Act (15 and 16 Vict., c. 72) that it shall not be lawful for the House of Representatives or the Legislative Council to pass, or for the Governor to assent to, any Bill appropriating to the public service any sum of money from or out of His Majesty's revenue within New Zealand unless the Governor, on His Majesty's behalf, shall first have recommended the House of Representatives to make provision for the specific public purpose towards which such money is to be appropriated. The provisions of this section render it necessary for any Appropriation Bill to be initiated in the Lower House.

3. There is no legal provision for a settlement of differences between the two Houses. The question of the relations between the two Houses with regard to Money Bills was submitted in 1872 to the law officers of the Crown, who gave an opinion on the question on the 18th of June, 1872, to the effect that the Legislative Council was not entitled to amend a Money Bill which the House of Lords in England would not have amended. (See Appendix to Journals of Legislative Council of New Zealand for 1872, No. 3.)

The question of the relations of the two Houses in general legislation was discussed in 1892, and papers were laid before Parliament. (See House of Commons Paper 198, 1893-4.)

CAPE OF GOOD HOPE.

The Legislative Council of the Cape of Good Hope consists of twenty-six elected members, presided over *ex officio* by the Chief Justice. The members are elected four for the Western, the South-eastern and the Eastern provinces, three for the North-western, South-western, Midland and North-eastern provinces, and one each for British Bechuanaland and Griqualand West. They keep their seats for seven years unless the Council is sooner dissolved.

No person is qualified to be elected a member of the Council who is incapacitated to be registered as a voter, is under the age of 30 years, is not the owner for his own use and benefit of immovable property situate within the colony of the value of 2,000*l.* over and above all special conventional mortgages affecting the same or who is not, being the owner of such property to such value but under mortgage, at the same time possessed of property movable and immovable in the Colony to the value of not less than 4,000*l.* over and above his just debts. A married man for the purposes of this provision is deemed and taken to own or occupy the whole of the property belonging to his wife. But no person holding an office of profit under the Crown within the colony, and no uncertificated insolvent, and no alien who shall be registered as a voter by virtue merely of having obtained a deed of burghership shall be eligible to be elected a member of the Council. From this proviso are excepted the offices of Colonial Secretary, Treasurer, Attorney-General, Commissioner of Public Works, and Secretary for Agriculture, and of Prime Minister even if not holding one of these offices.

A member of the Legislative Council can resign his seat by writing under his hand or by telegraph message addressed to the president of the Council, and his seat is vacated if for one whole session of the Parliament he fails to give his attendance in the Council without the permission of the Council, or shall take any oath or make any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign Prince or Power, or shall do, concur in, or adopt any act whereby he may become a subject or citizen of any foreign State or Power, or if his estate shall be sequestrated as insolvent. A seat is also vacated if the member shall accept or be the holder of any office of profit under the Crown save and except the office of Colonial Secretary and other offices specified above.

The qualifications for electors are the age of 21 years or upwards, possession of property worth 75*l.*, or receipt of salary or wages of not less than 50*l.* a year, but no person can be newly registered as a voter since the Ballot and Franchise Act of 1892 unless he can sign his name and write his address and occupation. Voters for the Legislative Council have as many votes as there are seats to be filled, and they may give two or three votes to one candidate or divide them between two or more candidates.

2. The following provision is made by section 88 of the Constitution Ordinance approved by Order in Council of the 11th March, 1853:—

> "And be it enacted, that in regard to all Bills relative to the granting of supplies to Her Majesty, or the imposition of any impost, rate, or pecuniary burden upon the inhabitants, and which Bills shall be of such a nature that if Bills similar to them should be proposed to the Imperial Parliament of Great Britain and Ireland, such Bills would, by the law and custom of Parliament, be required to originate in the House of Commons, that all such Bills shall originate in, or be by the Governor of the Cape of Good Hope introduced into, the House of Assembly of the said Colony: Provided that the Legislative Council of the said Colony and the Governor thereof shall, respectively, have full power and authority to make, in all such Bills, such amendments as the said Council and the said Governor shall, respectively, regard as needful or expedient; and the said Council and the said Governor may, respectively, return such Bills, so amended, to the House of Assembly or the Legislative Council."

3. No special provision is made by law for the settlement of differences between the Legislative Council and the House of Assembly, but by section 74 of the Constitution Ordinance it is provided that the Governor may whenever he shall see fit so to do, either by speech or proclamation dissolve the Legislative Council and the House of Assembly, or dissolve the House of Assembly without dissolving the Legislative Council.

NATAL.

The Legislative Council of Natal consists of thirteen members summoned by the Governor in Council in the name of His Majesty by instrument under the Public Seal of the Colony.

Each person so summoned holds his seat for ten years from the date of his summons, but five of the members of the Legislative Council first summoned vacate their seats at the end of five years, the particular members who are so to vacate their seats being decided by lot within the first week of the first session of the Legislative Council. The members are summoned from the following districts of the colony: Five from within the counties of Durban, Victoria, Alexandria, and Alfred; three from within the counties of Pietersmaritzburg and Umvoti, and three from within the counties of Weenen and Klip River, one from the Province of Zululand, and one from the new territory (Utrecht); but not more than two members may be chosen within any one county.

A legislative councillor must be of the age of 30 years or upwards, must not be subject to any disqualification which would vacate his seat if it occurred after his appointment, have resided in the colony for ten years, and be the registered proprietor of immovable property within the Colony of the value of 500*l.* in net value, after deduction of the amount of all registered mortgages.

A seat in the Legislative Council is vacated if any member of the Council shall fail for a whole ordinary annual session to give his attendance in the House, or shall cease to hold his qualification, or shall take any oath or make any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign State or Power, or shall do, concur in, or adopt any act whereby he may become the subject or citizen of any such State or Power, or shall become an insolvent, or take advantage of any Act for the relief of insolvent debtors, or shall become a public defaulter, or shall be attainted of treason, or be sentenced to imprisonment for any infamous crime, or shall become of unsound mind, or shall accept any office of profit under the Crown other than a political office, or that of an officer of His Majesty's sea or land forces on full, retired, or half pay. The disqualification does not apply in the case of persons in receipt of pensions from the Colonial Government, or who were granted pensions under the Constitution Act of 1893 on their retirement on political grounds. A seat is also vacated if any member of the Legislative Council shall for the period of one month remain a party to any contract with the Government; but this does not apply to a purchaser of land at public auction from the Government, or to any lessee of Government land. A member of the Council may also resign his seat by writing under his hand addressed to the Governor. A member is eligible for re-appointment by the Governor.

2. It is provided by section 48 of the Constitution Act of 1893 that all Bills for appropriating any part of the consolidated revenue fund, or for imposing, altering, or repealing any rate, tax, duty, or impost, shall originate in the Legislative Assembly. By section 49 it is provided that "The Legislative Council may either accept or reject any Money Bill passed by the Legislative Assembly, but may not alter it."

3. There is no express provision for the settlement of differences between the two Houses of Parliament, whether with regard to finance or to general legislation.

TRANSVAAL.

By section 2 of the Letters Patent of the 6th of December 1906 it is provided that the Legislative Council shall consist of fifteen members, who shall be summoned in the case of the first Council by the Governor, and if any vacancy shall occur in the first or in any subsequent Council a member shall be appointed to fill the said vacancy

by the Governor in Council until the completion of the period for which the person in whose place he is appointed would have held office. Members of the Council are appointed in the name of His Majesty by instrument under the Public Seal of the Colony.

A member of the Council must be of the age of 30 years or upwards, have resided in the colony for three years, and be qualified to be registered as a voter for some electoral division of the colony. Members of the first Council hold office for five years, but at any time after four years of the date of the first meeting of the Council the Legislature may pass a law providing for the election of members of the Legislative Council, whereupon, subject to the provisions of any such law, the then existing Legislative Council shall be dissolved and all members of the Legislative Council shall thereafter be elected as prescribed in the law.

Any member of the Legislative Council may resign his seat by writing under his hand addressed to the Governor, and a seat is vacated if any member of the Legislative Council shall—

> " (1) Fail for a whole ordinary annual session to give his attendance in the Legislative Council; or
>
> " (2) Shall take any oath, or make any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign State or Power; or
>
> " (3) Shall do, concur in, or adopt any act whereby he may become the subject or citizen of any such State or Power; or
>
> " (4) Shall become an insolvent or take advantage of any law for the relief of insolvent debtors; or
>
> " (5) Shall be a public defaulter, or be attainted of treason, or be sentenced to imprisonment for any infamous crime; or
>
> " (6) Shall become of unsound mind; or
>
> " (7) Shall accept any office of profit under the Crown other than that of a Minister or that of an officer of our naval and military forces on retired or half-pay."

Provided that a person in receipt of pension from the Crown shall not be deemed to hold an office of profit under the Crown within the meaning of this section.

2. It is provided by sections 55 and 56 of the Letters Patent that all Bills for appropriating any part of the consolidated revenue fund or for imposing, altering, or repealing any rate, tax, duty, or impost, shall originate in the Legislative Assembly, and that " The Legislative Council may either accept or reject any Money Bill passed by the Legislative Assembly, but may not alter it."

3. The following provision is made by section 37 for the case of disagreement between the Legislative Council and the Legislative Assembly:—

> " (1) If the Legislative Assembly passes any proposed law and the Legislative Council rejects or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, and if the Legislative Assembly, in the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Legislative Council, and the Legislative Council rejects, or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, the Governor may during that session convene a joint sitting of the members of the Legislative Council and Legislative Assembly in the manner hereinafter provided, or may dissolve the Legislative Assembly, and may simultaneously dissolve both the Legislative Council and Legislative Assembly if the Legislative Council shall then be an elected Council. But such dissolution shall not take place within six months before the date of the expiry of the Legislative Assembly by effluxion of time.

"(2) If after such dissolution the Legislative Assembly again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by the Legislative Council, and the Legislative Council rejects or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, the Governor may convene a joint sitting of the members of the Legislative Council and of the Legislative Assembly, at which the Speaker of the Legislative Assembly shall preside.

"(3) The members present at any joint sitting convened under either of the preceding subsections, may deliberate and shall vote together upon the proposed law, as last proposed by the Legislative Assembly, and upon amendments, if any, which have been made therein by the one House of the Legislature and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Legislative Council and the Legislative Assembly shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried, is affirmed by an absolute majority of the total number of the members of the Legislative Council and Legislative Assembly, it shall be taken to have been duly passed by the Legislature."

ORANGE RIVER COLONY.

1. The Legislative Council of the Orange River Colony as constituted by the Letters Patent of the 5th of June, 1907, consists of eleven members, to be summoned by the Governor by an Instrument under the Public Seal of the Colony in the name of His Majesty.

It is provided by the Letters Patent that three of the members of the Legislative Council, as first constituted, should vacate their seats at the expiration of the third year from the date of the issue of the first summons of any members thereto; four at the end of the fifth year and four at the end of the seventh year; the members who retire at the end of the third, fifth, and seventh years to be decided by lot, and fresh members to be appointed in their place by the Governor in Council; such members to hold office for five years from the date of their summons. But members can be reappointed by the Governor in Council.

Power was given in the Letters Patent for the Legislature, at any time after four years from the date of the first Order of the Council, to pass a law providing for the election of members of the Legislative Council, and thereupon, subject to the provisions of such law, the then existing Legislative Council would be dissolved and the new Council would be elected on such conditions as were laid down in the law.

No person can be summoned unless he is of the age of 30 years or upwards, has resided in the colony for three years, and is qualified to be registered as a voter for some electoral division of the colony.

Any member of the Legislative Council may resign his seat by writing under his hand addressed to the Governor.

A member of the Legislative Council vacates his seat if he—

"(1) Shall fail for a whole ordinary annual session to give his attendance in the Legislative Council; or

"(2) Shall take any oath, or make any declaration or acknowledgment of allegiance, obedience, or adherence to any foreign State or Power; or

"(3) Shall do, concur in, or adopt any act whereby he may become the subject or citizen of any such State or Power; or

"(4) Shall become an insolvent or take advantage of any law for the relief of insolvent debtors; or

"(5) Shall be a public defaulter, or be attainted of treason, or be sentenced to imprisonment for any infamous crime; or

"(6) Shall become of unsound mind; or

"(7) Shall accept any office of profit under the Crown other than that of a Minister, that of a member of the Inter-Colonial Council, of the Liquor Licensing Court, or of any Commission appointed by the Governer in Council, or under any law to make any public inquiry, or that of an officer of Our naval and military forces on retired or half-pay,"

Provided that a person in receipt of pension from the Crown shall not be deemed to hold an office of profit under the Crown within the meaning of this section.

2. By section 56 of the Letters Patent, all Bills for appropriating any part of the consolidated revenue fund, or for imposing, altering or repealing any rate, tax, duty or impost were to originate in the Legislative Assembly. And by section 57, "The Legislative Council may either accept or reject any Money Bill passed by the Legislative Assembly, but may not alter it."

3. The following provision is made by section 39 for the case of disagreements between the Legislative Council and the Legislative Assembly:—

"(1) If the Legislative Assembly passes any proposed law and the Legislative Council rejects or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, and if the Legislative Assembly, in the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Legislative Council, and the Legislative Council reject, or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, the Governor may during that session convene a joint sitting of the members of the Legislative Council and Legislative Assembly, and may simultaneously provided, or may dissolve the Legislative Assembly, and may simultaneously dissolve both the Legislative Council and Legislative Assembly if the Legislative Council shall then be an elected Council. But such dissolution shall not take place within six months before the date of the expiry of the Legislative Assembly by effluxion of time.

"(2) If after such dissolution the Legislative Assembly again passes the proposed law, with or without any amendments, which have been made, suggested, or agreed to by the Legislative Council, and the Legislative Council rejects or fails to pass it, or passes it with amendments to which the Legislative Assembly will not agree, the Governor may convene a joint sitting of the Members of the Legislative Council and of the Legislative Assembly, at which the Speaker of the Legislative Assembly shall preside.

"(3) The members present at any joint sitting convened under either of the preceding subsections may deliberate and shall vote together upon the proposed law, as last proposed by the Legislative Assembly, and upon amendments, if any, which have been made therein by the one House of the Legislature and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the Members of the Legislative Council and Legislative Assembly shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried, is affirmed by an absolute majority of the total number of the members of the Legislative Council and Legislative Assembly, it shall be taken to have been duly passed by the Legislature."

UNION OF SOUTH AFRICA.

The Senate of South Africa under the South Africa Act, 1909, which will take effect from the 31st of May, 1910, is constituted as follows:—

24. For ten years after the establishment of the Union, the constitution of the Senate shall, in respect of the original provinces, be as follows:—

"(1) Eight senators shall be nominated by the Governor General in Council and for each original province eight senators shall be elected in the manner hereinafter provided;

"(2) The senators to be nominated by the Governor General in Council shall hold their seats for ten years. One-half of their number shall be selected on the ground mainly of their thorough acquaintance, by reason of their official experience or otherwise, with the reasonable wants and wishes of the coloured races in South Africa. If the seat of a senator so nominated shall become vacant, the Governor-General in Council shall nominate another person to be a senator, who shall hold his seat for ten years;

"(3) After the passing of this Act, and before the day appointed for the establishment of the Union, the Governor of each of the Colonies shall summon a special sitting of both Houses of the Legislature, and the two Houses sitting together as one body, and presided over by the Speaker of the Legislative Assembly, shall elect eight persons to be senators for the province. Such senators shall hold their seats for ten years. If the seat of a senator so elected shall become vacant, the provincial council of the province for which such senator has been selected shall choose a person to hold the seat until the completion of the period for which the person in whose stead he is elected would have held his seat.

25. Parliament may provide for the manner in which the Senate shall be constituted after the expiration of ten years, and unless and until such provision shall have been made:—

"(1) The provisions of the last preceding section with regard to nominated senators shall continue to have effect:

"(2) Eight senators for each province shall be elected by the members of the provincial council of such province together with the members of the House of Assembly elected for such province. Such senators shall hold their seats for ten years unless the Senate be sooner dissolved. If the seat of an elected senator shall become vacant, the members of the provincial council of the province, together with the members of the House of Assembly elected for such province, shall choose a person to hold the seat until the completion of the period for which the person in whose stead he is elected would have held his seat. The Governor-General in Council shall make regulations for the joint election of senators prescribed in this section.

26. The qualifications of a senator shall be as follows:—

He must—

(*a*) Be not less than 30 years of age;

(*b*) Be qualified to be registered as a voter for the election of members of the House of Assembly in one of the provinces;

(*c*) Have resided for five years within the limits of the Union as existing at the time when he is elected or nominated, as the case may be;

(*d*) Be a British subject of European descent;

(*e*) In the case of an elected senator, be the registered owner of immovable property within the Union of the value of not less than £500 over and above any special mortgages thereon.

"For the purposes of this section, residence in, and property situated within, a colony before its incorporation in the Union shall be treated as residence in and property situated within the Union.

"No person shall be capable of being chosen or of sitting as a senator who—

"(*a*) Has been at any time convicted of any crime or offence for which he shall have been sentenced to imprisonment without the option of a fine for a term of not less than twelve months, unless he shall have received a grant of amnesty or a free pardon, or unless such imprisonment shall have expired at least five years before the date of his election; or

"(*b*) Is an unrehabilitated insolvent; or

"(*c*) Is of unsound mind, and has been so declared by a competent court; or

"(*d*) Holds any office of profit under the Crown within the Union: Provided that the following persons shall not be deemed to hold an office of profit under the Crown for the purposes of this subsection:

"(1) A Minister of State for the Union;

"(2) A person in receipt of a pension from the Crown;

"(3) An officer or member of His Majesty's naval or military forces on retired or half pay, or an officer or member of the naval or military forces of the Union whose services are not wholly employed by the Union.

"If a senator—

"(*a*) Becomes subject to any of the disabilities mentioned in the last preceding section; or

"(*b*) Ceases to be qualified as required by law; or

"(*c*) Fails for a whole ordinary session to attend without the special leave of the Senate,

"his seat thereupon becomes vacant.

2. The provisions of the South Africa Act as to the powers of the Senate are as follows:—

"60.—(1) Bills appropriating revenue or moneys or imposing taxation shall originate only in the House of Assembly. But a Bill shall not be taken to appropriate revenue or moneys or to impose taxation by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties.

"(2) The Senate may not amend any Bills so far as they impose taxation or appropriate revenue or moneys for the services of the Government.

"(3) The Senate may not amend any Bill so as to increase any proposed charges or burden on the people.

"61. Any Bill which appropriates revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriation."

3. The following provision is made in section 63 of the South Africa Act for the cases of disagreement between the two Houses:—

"63. If the House of Assembly passes any Bill and the Senate rejects or fails to pass it or passes it with amendments to which the House of Assembly will not agree, and if the House of Assembly in the next session again passes

the Bill with or without any amendments which have been made or agreed to by the Senate and the Senate rejects or fails to pass it or passes it with amendments to which the House of Assembly will not agree, the Governor General may during that session convene a joint sitting of the members of the Senate and House of Assembly. The members present at any such joint sitting may deliberate and shall vote together upon the Bill as last proposed by the House of Assembly and upon amendments, if any, which have been made therein by one House of Parliament and not agreed to by the other; and any such amendments which are affirmed by a majority of the total number of members of the Senate and House of Assembly present at such sitting shall be taken to have been carried, and if the Bill with the amendments, if any, is affirmed by a majority of the members of the Senate and House of Assembly present at such sitting, it shall be taken to have been duly passed by both Houses of Parliament: Provided that, if the Senate shall reject or fail to pass any Bill dealing with the appropriation of revenue or moneys for the public service, such joint sitting may be convened during the same session in which the Senate so rejects or fails to pass such Bill."

SUPPLEMENTARY RETURN

[246a]

To an Order of the House of Commons, dated 2nd March, 1914, giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of Government:—

1. As to the method of appointment, whether by Executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or otherwise.

3. As to a re-appointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qualifications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or additional appointments in case of disagreement between the Upper and Lower Houses.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status of such Upper Chambers.

LOUIS P. PELLETIER,
for Secretary of State.

June 10, 1914.

THE SECOND CHAMBER.

An Abstract showing certain aspects of the constitution of various Upper Houses of the Legislature in the British Empire and foreign countries.

GREAT BRITAIN.

(Authorities consulted: Lowell, The Government of England, new edition, 1912; Anson, Law and Custom of the Constitution, 4th edition, 1911; Ogg, The Government of Europe; The Parliament Act, 1911, statutes 1-2 Geo. V, c. 13.)

Number.—The number of the House of Lords is not limited by law. To-day it numbers about 650.

Method of Appointment and Election—Tenure—Qualifications.—The House of Lords comprises at least five distinct groups:—

(1) Peers with hereditary seats.—These are the peers of England created before the union with Scotland in 1707; the peers of Great Britain created between that date and the union with Ireland in 1801; and the peers of the United Kingdom created since. The Crown, that is, the Ministry of the day, has unlimited power to create hereditary peerages, and this is now the only channel for an increase in the membership of the House.

(2) The Representative Peers of Scotland.—Under the Act of Union of 1707, when a new Parliament is summoned, the whole body of Scottish peers elect sixteen of their number to sit as their representatives in the House of Lords. Their tenure expires with the termination of a Parliament.

(3) The Representative Peers of Ireland.—Under the Act of Union of 1800 twenty-eight of the Irish peerage are elected by the whole body as representatives and each representative peer enjoys his right as a Lord of Parliament for the term of his life.

(4) The Lords Spiritual.—The number of these is restricted under statutory regulation to twenty-six. Five English ecclesiastics are entitled by statute invariably to seats—the Archbishops of Canterbury and York and the Bishops of London, Durham and Winchester. Among the remaining bishops, seats are allowed to twenty-one in the order of seniority. The Lords Spiritual retain their seats in virtue of, and only during, tenure of their several Sees.

Appointment to the ecclesiastical office is controlled by the Crown, that is, by the Ministry of the day. There are no Scottish or Irish Lords Spiritual.

(5) The Lords of Appeal in Ordinary.—These number four and are created by virtue of high legal qualification, primarily to assist in the judicial function of the House of Lords. They are also entitled to the dignity of Baron for life and to a writ of summons to attend and vote as other peers. This right lasts for life although the discharge of judicial duties may have ceased.

Infants, aliens, bankrupts, and persons under sentence for grave offences, are incapable of sitting in the House of Lords. On the other hand, a peer cannot renounce his inheritance of rank.

Adjustment of Disagreements between the Houses—The Parliament Act, 1911:—

(a) As to Money Bills.—The Act (1-2 Geo. V, c. 13) provides in substance that if a Money Bill, having been passed by the House of Commons and sent to the House of Lords at least a month before the end of the session, is not passed by that House without amendment within one month it shall become an Act on the Royal Assent being signified. A Money Bill is defined as a public Bill which in the opinion of the Speaker deals only with the imposition, repeal or regulation of taxation; with the imposition or repeal of charges on the Consolidated Fund or on money provided by Parliament; with supply; with the appropriation, receipt, issue or audit of public money; with the raising, guarantee or payment of a loan; or with matters incidental to these subjects. Provisions dealing with the taxation, money or loans of local authorities for local purposes are expressly excluded.

(b) As to Other Bills.—In regard to other bills the Act provides that if any public Bill (other than a Money Bill or one to extend the term of Parliament beyond five years) is passed by the House of Commons in three successive sessions (whether of the same Parliament or not) and is not passed by the House of Lords without amendment or with such amendments only as the Commons accept, it shall become an Act on the Royal assent being signified; provided two years have elapsed between the second reading in the House of

Commons at the first session and the final passage by that House in the third session. The Bill must be passed by the Commons each time in identical form, save for the alterations made necessary by the lapse of time, and for amendments agreed to by both Houses. The certificate of the Speaker that the provisions of the Act have been complied with is made conclusive. The Act does not affect legislation by private Bill or provisional order. It provides special words of enactment for legislation passed under its provisions.

(c) This Act does not purport to represent a final scheme for the reform of the relations between the two Houses; for its preamble recites that "it is intended to substitute for the House of Lords as it at present exists a Second Chamber constituted on a popular instead of hereditary basis, but such substitution cannot be immediately brought into operation," and further that "provision will require hereafter to be made by Parliament, in a measure affecting such substitution, for limiting and defining the powers of the new Second Chamber, but it is expedient to make such provision as in this Act appears for restricting the existing powers of the House of Lords." In other words, the Parliament Act touches only the powers of the Second Chamber; it does not affect the composition or method of appointment, and it recognizes that when a newly-constituted Second Chamber has been provided, other rules than are now provided may be necessary to define the powers of the new House and the relations between the two Houses. And the Government responsible for the Act expressly emphasized its temporary character throughout the debate. Mr. Asquith, on February 28, 1910, in a careful statement respecting the preliminary resolutions then about to be introduced, said: "They will affirm the necessity for excluding the House of Lords altogether from the domain of finance. They will ask this House to declare that in the sphere of legislation the power of veto, at present possessed by the House of Lords, should be so limited in its exercise as to secure the predominance of the deliberate and considered will of this House within the lifetime of a single Parliament. Further, it will be made plain that *these constitutional changes are without prejudice to, and contemplate in a subsequent year, the substitution in our Second Chamber of a democratic for an hereditary basis.*" (Hansard, 1910, vol. 14, p. 595.)

This was later repeated both in exact terms (Hansard, 1910, vol. 15, p. 959) and in substance: "We put them forward to deal with the emergency which confronts us, not as purporting to be a full or adequate solution of the whole problem, or as exhausting the policy of the Government." (Hansard, 1910, vol. 15, p. 1180.) See also Hansard, 1911, vol. 21, p. 1752. As to what was conceived as the proper character or attributes of a Second Chamber should be, Mr. Asquith merely indicated his views. (Hansard, 1910, vol. 15, pp. 1165-6.)

QUEBEC.

(See Bourinot, Manual of Constitutional History of Canada, p. 65; British North America Act, secs. 23, 72-79).

Number.—The Legislative Council numbers twenty-four members.

Method of appointment.—Members are appointed by the Lieutenant-Governor in the King's name, and represent the same electoral districts from which senators are chosen.

Term of office.—The term is for life.

Qualifications.—The qualifications are the same as those of the senators from the province and vacancies arise for the same reasons as in the case of senators.

Other provisions.—The Governor appoints a Speaker from among the members. Ten constitute a quorum. The Council has legislative functions co-ordinate with those of the Assembly except with regard to Money Bills. Its constitution may be amended by the Legislature of the province. There is no provision for the adjustment of differences between the two Houses.

NOVA SCOTIA.

(Authorities: Bourinot, Manual of Constitutional History of Canada, p. 69; and "The Constitution of the Legislative Council of Nova Scotia"; Transactions of the Royal Society of Canada, new series, Vol. 2; Revised Statutes of Nova Scotia, 1900, c. 2; British North America Act).

Number.—The Legislative Council numbers twenty-one ordinarily, though it varies to eighteen.

Method of appointment.—Members are appointed by the Lieutenant-Governor in the name of the Crown.

Term of office.—The term is for life.

Qualifications.—There is a property qualification. Seats are vacated for bankruptcy or insolvency, conviction of crime, or for absence for two sessions without the consent of the Governor in Council.

The Legislative Council has legislative functions co-ordinate with those of the Assembly except with regard to Money Bills.

The constitution of Nova Scotia, and therefore of the Council, is considered "as derived from terms of the Royal Commissions to the Governors and Lieutenant Governors, and from the instructions accompanying the same, moulded from time to time by despatches from Secretaries of State, conveying the will of the Sovereign, and by Acts of the Local Legislature, assented to by the Crown; the whole to some extent interpreted by uniform usage and custom in the colony" (memorandum by Governor Archibald in answer to an address of Parliament, Can. Sess. p. 1883, No. 70, pp. 8, 39) After 1867 the Council remained constituted as before, but subject to the power of amendment vested by the British North America Act in the Legislature of the province.

There is no provision for the adjustment of differences between the two Houses; and it would seem that the number of the Legislative Council is limited and that therefore disagreements cannot be overcome by appointments to the Council. (See Transactions of Royal Society of Canada, new series, vol. 2, article on "The Constitution of the Legislative Council of Nova Scotia.")

NEWFOUNDLAND.

(See Letters Patent of March 28, 1876, to the Governor of Newfoundland; Instructions of same date; to be found in Consolidated Statutes of Newfoundland, 2nd series, 1892, pp. 1107 *et seq.*)

Number.—The number of the Legislative Council is not fixed, though the total number for the time being resident within the colony may not be raised *by means of appointments by the Governor* (see below) to more than fifteen. The number now stands at twenty-four.

Method of appointment.—Members are nominated and appointed from time to time by the King under the Sign Manual and Signet, or provisionally by the Governor subject to the pleasure of the Crown and to the restriction above noted.

Term of office.—Members hold office during the King's pleasure and are removable by warrant issued by the King on advice of the Privy Council. This is now understood to mean that members hold office at the will of the Government of Newfoundland.

Other provisions.—The Governor appoints from time to time a President of the Council from among the members. Five constitute a quorum. There is by rule of the House of Assembly the usual distinction of powers between the two Houses with respect to Money Bills.

Adjustment of disagreements between the Houses.—There is no provision of law for the adjustment of disagreements between the two Houses; but as seen there is no limitation on the power of the Crown to add to the number of the Legislative Council.

NEW ZEALAND.

(See New Zealand Constitution Act, 1852, 15 and 16 Vict., c. 72; Legislative Council Act, 1891; Legislative Council Act, 1908.)

Number.—The number of the Legislative Council may not be less than 10; otherwise it is unlimited. At present the number is 42. (See New Zealand Year Book, 1913.) It is said by one authority that the members represent certain provincial districts (Analysis of the System of Government throughout the British Empire, Macmillan & Co., p. 90). There seems to be no provision of law to this effect.

Method of appointment.—Members are appointed by the Governor from time to time.

Term of office.—The term is seven years, but a member may be reappointed. There are a few remaining life members appointed before the term of office was changed by the Act of 1891. (See Douglas, The Dominion of New Zealand.) It is interesting to note that that Act, in order to induce life members to resign, made a standing offer of a free railway pass throughout the Dominion and the use of the Parliamentary Library, both for life.

Other provisions.—As to qualification, a member must be 21 years old, a British subject, free from taint of bankruptcy, treason, infamous offence and public defalcation, and may not be the holder of certain named public offices. There is the usual distinction of powers between the two Houses with respect to Money Bills.

Adjustment of disagreements between the Houses.—While there is no legislative provision for the adjustment of disagreements between the two Houses, there is no limitation as seen, on the power of appointment to the Legislative Council.

Proposed reform.—The present Government proposes to reform the Legislative Council. A Bill to that end has already been put forward. Up till now the majority in the Council itself have been against it and it has twice been rejected.

The scheme generally is a division of the Dominion into four large electorates to choose members under the Tasmanian system of proportional representation. Two of the electorates are to choose eleven members each, and the other two nine members each. The suffrage will be universal and the elected Councillors will sit for six years. The scheme cannot be in full operation for five or six years, as time is allowed for the gradual disappearance of the present nominee members. The Bill contains the English provision for passing Money Bills over the Upper Chamber's head if necessary, and the Australian provision for "suggested" amendments and for dealing with deadlocks.

AUSTRALIA.

References are to the Commonwealth of Australia Constitution Act, July 9, 1900, 63 and 64 Vict., c. 12.)

Number.—There are six senators from each original state (sec. 7).

Method of Election.—"Senators are directly chosen by the people of the State . . . as one electorate" (except that Queensland is entitled to divide itself into senatorial districts), sec. 7.

Term of Office.—Senators are elected for six years. One-half retire every three years. (Sec. 7; sec. 13, as amended by the Constitution Alteration, Senate Elections, 1906, Law 1 of 1907.)

Qualifications.—These are the same as for members of the House of Representatives (sec. 16); that is, a member must be a British subject, 21 years old, an elector, and a resident for three years within the Commonwealth (sec. 34).

Qualifications of Electors.—These are the same as in the case of the Lower House (sec. 8).

Vacancies.—Vacancies are filled by the Houses of Parliament of the State sitting together, the person so chosen holding office till the end of the term, unless a regular general election (either for the House or Senate) occurs in the meantime, in which event a successor is chosen in the usual manner to hold till the end of the term. If the State Parliament is not in session the Governor in Council of the State may choose a successor to hold until the expiration of fourteen days after the beginning of the next session or until the election of a successor as above, whichever happens first (sec. 15).

Regulation of method.—The method of election and number may be changed by the Federal Parliament; but no original state may be deprived of equality nor have less than six senators; and subject to the foregoing, the states may regulate the method, time and place (secs. 7, 9).

Powers.—There is the usual distinction of powers between the two Houses with respect to Money Bills (sec. 53).

Adjustment of Disagreements between the Houses.—Section 57 provides for the adjustment of disagreements between the two Houses. If the House of Representatives passes any Bill and the Senate rejects it or fails to pass it, or passes it with amendments to which the House will not agree, and if after three months the House in the same or next session again passes it, with or without amendments made or suggested by the Senate, and the Senate rejects or fails to pass it or passes it with amendments unacceptable to the House, the Governor General may dissolve the Senate and House simultaneously. If after such dissolution the House again passes the Bill with or without any amendments made or suggested by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments unacceptable to the House, the Governor General may convene a joint sitting of the members of the Senate and House. The members at the joint sitting may deliberate upon the Bill as last proposed by the House and upon any amendments which have been the cause of difference, and the Bill, with or without amendments, may be carried by an absolute majority of the total number of members of the Senate and House, and shall then be taken to have passed both Houses.

There is special provision for amendments to the constitution. Amendments proposed by an absolute majority of each House shall be submitted to the electors, or those twice proposed by one House with an interval of three months, though disagreed to by the other House, may be submitted to the electors by the Governor General. It must be approved by a majority of the electors in each of a majority of the states, and by a majority of all the electors voting (sec. 128).

SOUTH AFRICA.

(References are to the South Africa Act, 1909, 9 Ed. VII, c. 9).

Number.—There are eight senators at large and eight from each original province. (Sec. 24.)

Method of appointment and election.—The senators at large are nominated by the Governor General in Council; the others were elected for each province before the establishment of the Union by the two Houses of the Colony sitting together (sec. 24). After ten years from the establishment of the Union, if Parliament does not make other provision, the method as to nominated senators is to remain unchanged, while the eight senators from each province are to be elected by the Provincial Council and House of Assembly sitting together and are to hold their seats for ten years unless the Senate is sooner dissolved. (Sec. 25.)

Term of office.—The term is ten years. (Sec. 24.)

Qualification.—A senator must be 30 years old, an elector, a resident for five years within the limits of the Union, a British subject of European descent, and in addition an elected senator must own immovable property within the Union to the value of £500 (sec. 26). One-half of the nominated senators must be selected on the ground mainly of their thorough acquaintance, by reason of their official experience, with the reasonable wants and wishes of the coloured races in South Africa. ((Sec. 24.)

Vacancies.—In the case of a nominated senator the Governor General in Council nominates a successor who holds for ten years. In the case of an elected senator the vacancy is filled by the Provincial Council, though after ten years from the establishment of the Union, by the Provincial Council and House of Assembly sitting together, and the successor holds simply for the balance of the term. (Secs. 24, 25.)

Regulation of Method of Election.—After ten years from the establishment of the Union, Parliament may provide for the manner in which the Senate may be constituted. (sec. 25.)

Dissolution.—The Governor General may dissolve the Senate and House of Assembly or the House alone, though the Senate may not be dissolved within ten years of the establishment of the Union and dissolution cannot affect nominated Senators. (sec. 20.)

Adjustment of Disagreement between the Houses.—The provision for the contingency of disagreement between the House of Assembly and Senate is section 63, and it reads as follows—

> "If the House of Assembly passes any Bill and the Senate rejects or fails to pass it or passes it with amendments to which the House of Assembly will not agree, and if the House of Assembly in the next session again passes the Bill with or without any amendments which have been made or agreed to by the Senate and the Senate rejects or fails to pass it or passes it with amendments to which the House of Assembly will not agree, the Governor General may during that session convene a joint sitting of the members of the Senate and House of Assembly. The members present at any such joint sitting may deliberate and shall vote together upon the Bill as last proposed by the House of Assembly and upon amendments, if any, which have been made therein by one House of Parliament and not agreed to by the other; and any such amendments which are affirmed by a majority of the total number of members of the Senate and House of Assembly present at such sitting shall be taken to have been carried, and if the Bill with the amendments, if any, is affirmed by a majority of the

members of the Senate and House of Assembly present at such sitting, it shall be taken to have been duly passed by both Houses of Parliament; Provided that, if the Senate shall reject or fail to pass any Bill dealing with the appropriation of revenue or moneys for the public service, such joint sitting may be convened during the same session in which the Senate so rejects or fails to pass such Bill."

UNITED STATES.

(References are to the Constitution of the United States).

Number.—Two senators are chosen from each state. (Art. 1, sec. 3, par. 1; 17th amendment.)

Method of Election.—Formerly chosen by the State Legislatures, senators are now elected directly by the people of their respective states. (17th amendment, ratified May, 1913.)

Term of Office.—The term is six years. One-third of the senators are retired and their successors chosen every two years. (Art. 1, sec. 3, par. 1-2; 17th amendment.)

Qualification.—A senator must be 30 years old, a citizen of the United States for nine years, and an inhabitant, when elected, of the state for which he is chosen. (Art. 1, sec. 3, par. 3.)

Qualification of electors.—The electors of senators in each state must have the qualifications requisite for electors of the most numerous branch of the State Legislature. (17th amendment.)

Vacancies.—These are filled by popular election, though the legislature of any state may empower its executive to make a temporary appointment until the people fill the vacancy by election as the legislature may direct. (17th amendment.)

Regulation.—The times, places and manner of election are prescribed by the various State Legislatures, but Congress may at any time alter such regulations except as to the places of election. (Art. 1, sec. 4, par. 1.)

Adjustment of Disagreements between the Houses.—There is no provision of law for the adjustment of disagreements between the House of Representatives and the Senate. In practice, however, such disagreements are referred by each House to a conference committee, appointed specially for the Bill in hand from among its own members. The two committees meet informally on the Bill. While in theory each is usually supposed to act under instructions from its own House, yet in practice they frequently report back what amounts to a new Bill, and this compromise is often passed by both Houses. It should be borne in mind that if the Senate disagrees with the House it is merely a disagreement between two Legislative Chambers and does not concern the Executive directly or at all necessarily, whereas under the parliamentary system a deadlock is in reality a matter between the Upper House and the Government of the day.

FRANCE.

(References are to the Law of Dec. 9, 1884—to be found in Dodd, Modern Constitutions, vol. 1, p. 310 *et seq.*)

Number.—The Senate consists of 300 members (art. 1); the number from each department or colony varying from ten to one (art. 2).

Method of Election.—Senators are elected by an electoral college meeting at the capital of the department or colony concerned and composed of (1) the deputies from

the department, (2) the general councillors of the department, (3) the councillors of the arrondissement (a subdivision of the department), and (4) delegates elected by each municipal council from among the voters of the commune (a smaller subdivision of the arrondissement). The number of delegates from each municipal council is according to the number of the council, varying from a council of ten electing one delegate to a council of thirty-six electing twenty-four, while the city of Paris elects thirty (art. 6.). The mode of election is that of *scrutin de liste,* that is, each elector has as many votes as there are senators to be elected, but can give only one vote to any candidate.

Term of Office.—Senators are chosen for nine years. One-third are retired and their successors chosen every three years. (Art. 7.)

Qualifications.—A senator must be a French citizen, 40 years of age, enjoy civil and political rights, and have complied with the law regarding military service. (Art. 4; see also law of July 20, 1895.)

One writer has the following to say of the French Senate:—

> "Few of the life members survive to-day. When they have disappeared the French Senate will be a compact body of three hundred men apportioned among the departments in approximate accordance with population, and chosen in all cases by bodies of electors all of whom have themselves been elected directly by the people. . . . From having long been viewed by republicans with suspicion, the Senate has become to be regarded by Frenchmen generally as perhaps the most perfect work of the Republic (citing J. C. Bracq, France under the Republic, New York, 1910, p. 8.). In these days its membership is recruited very largely from the deputies, so that it includes not only many men of distinction in letters and science but an unusual proportion of experienced debaters and parliamentarians. A leading American authority has said that it is composed of as impressive a body of men as can be found in any legislative chamber the world over" (citing Lowell, Governments and Parties, vol. 1, p. 22); from Ogg, The Governments of Europe, pp. 316-317).

Adjustment of Disagreements between the Houses.—There is no constitutional provision for the case of disagreements between the two Houses of Parliament. By their respective regulations a mixed committee of both Houses may be appointed in such cases to propose terms of agreement or compromise.

GERMANY.

Number.—The number of delegates to the Bundesrath varies. By the Imperial constitution the fifty-eight votes to which the twenty-five states of the federation are entitled are apportioned among the states. This is not completely according to population, wealth, etc., but is rather arbitrary. Thus, Prussia, with two-thirds of the population has a scant one-third of the votes (Ogg Governments of Europe, pp. 217-18; art. 6 of Imperial constitution; Dodd, Modern Constitutions, p. 328). Each state is authorized, though not required, to send to the Bundesrath a number of delegates equal to the number of votes to which the state is entitled. (Art. 6.)

Method of Appointment.—The delegates are appointed by the princes of the monarchical states and by the Senates of the free cities. (Art. 6.)

Term of Office.—Delegates are appointed fresh for each session, and they may be recalled or replaced at any time.

Ogg, in his book on the Governments of Europe, points out that the German Bundesrath "is not 'an Upper House' nor even in the ordinary sense a deliber-

ative chamber at all. On the contrary it is the central institution of the whole Imperial system and as such it is possessed of a broad combination of functions which are not only legislative but administrative, consultative, judicial, and diplomatic."

"Legally, and to a large extent, practically, the status of a delegate is that not of a senator but of a diplomat. They are very commonly officials, frequently ministers, of the states which they represent."

The members speak and act and vote regularly not at their own discretion but under specific instructions of the governing authorities by whom they are accredited. Only rarely do their instructions allow them any considerable measure of independence.

The votes cast are not votes of the individual members but of the states, and they are cast indivisible blocks by the delegation of the state regardless of the number of members in attendance. A single delegate may cast the entire quota of votes to which his state is entitled.

The Bundesrath may be convened by the Emperor at any time and there must be at least one session per year.

The work of the Bundesrath consists largely in the preparation of business for the Reichstag. Usually all bills originate in the Bundesrath and, strictly speaking, it is that body which makes the law, with merely the assent of the Reichstag.

The Bundesrath has (1) Executive functions: it takes action on administrative provisions for carrying out laws; issues ordinances; exercises control with the Emperor over the declaration of war and making of treaties; with the consent of the Emperor it may dissolve the Reichstag and its members may be heard on the floor of the Reichstag; it prepares the annual budget and participates in appointment of officials; (2) Judicial powers: it sits as a Supreme Court of Appeal in certain cases from state tribunals; is the court of last resort for disputes between the Imperial Government and the states, or between two states in certain cases. (Ogg, pp. 217-223.)

ALSACE-LORRAINE.

(References are to the constitution of Alsace-Lorraine of May 31, 1911—in Revue du Droit Public, 1911, vol. 28, pp. 465-471; to Annual Register, 1911; and to Ogg, The Governments of Europe.)

Number.—There are thirty-six members.

Method of Election and Appointment.—One-half are appointed ex-officio or as the nominees of public bodies; the other half are nominated by the Emperor. The first-mentioned class is constituted as follows: The Roman Catholic Bishops of Strassburg and Metz; the Presidents of the controlling bodies of the two branches of the Evangelical Church; the President of the highest provincial court; a professor of the University of Strassburg, chosen by the professors of the University; a representative of the Jewish faith, chosen by their body; four members elected by the municipal councils of Strassburg, Metz, Colmar and Mulhausen from among their number; three by Chambers of Commerce; three by the Agricultural Council; and one by the Strassburg Handwerkskammer, or League of Guilds. The second class, who are not to exceed in number the first, are nominated by the Emperor upon the advice of the (Imperial) Federal Council. (Const., sec. 6; Annual Register, 1911, p. 329.)

Term of Office.—Membership in the Upper House of the Diet expires in five years, or upon a dissolution of the Upper House. (Const., sec. 6; Annual Register, 1911, p. 329.)

Qualifications.—In addition to the qualifications indicated above, all members must reside in Alsace-Lorraine and be not less than 30 years of age. (Const., sec. 6; Annual Register, 1911, p. 329.)

All laws require the assent of the Emperor and the two Chambers of the Diet, and the budget of the year must be laid first before the Lower Chamber and must be accepted or rejected in its entirety by the upper one. (Const., sec. 5.) The Emperor has the right to summon, to adjourn, and to dissolve, the chambers simultaneously. (Const., sec. 11; Ogg, p. 286.)

SWITZERLAND.

(References are to the constitution of the Swiss Federation of May 29, 1874; Dodd, Modern Constitutions; Ogg, The Governments of Europe.)

Number The Council of States consists of forty-four members. Each canton appoints two representatives; each half-canton in the case of divided cantons choosing one . (Const., art. 80; Dodd, vol. 2, p. 278.)

Method of Election; Term of Office; Qualifications; Qualification of Electors; Vacancies; Regulation of Method.—For these matters as well as for the remuneration of members of the Council of the States there is no provision either in the constitution or in federal law. They are left wholly to the determination of the individual cantons. There is, in fact, no uniformity of law in these respects; in some cantons members are elected by popular vote; in others by the legislative assembly; in some they are chosen for one year; in others for two; in still others for three.

Adjustment of Disagreements between the Houses.—Cases of disagreement are referred to a joint committee of both Houses, but if the conference does not agree, or if either House does not accept the proposal made, the measure has to be abandoned.

It should also be noted that the two Houses, representing respectively the federal and national principles, are nominally co-ordinate in power; that Switzerland does not have the parliamentary system; and that the "initiative" and "referendum" are part of the constitutional system, possibly affecting the relations between the Houses.

AUSTRIA-HUNGARY.

For the combined empire-kingdom there is a joint ministry dealing simply with foreign affairs, war, and finance and a joint meeting in one body of two "delegations," one from the Parliament of Austria; the other from that of Hungary. Thus for Austria-Hungary there is no bicameral legislature nor in reality a legislature at all. But each member of the dual monarchy has its own legislative system.

AUSTRIA.

Number.—The Herrenhaus, or House of Lords, is variable in number. At the close of 1910 there were 266 (Ogg, The Governments of Europe, p. 465).

Method of Appointment.—The members hold office in part by ex-officio right, in part by hereditary status, and in part by special Imperial appointment. (Law of December 21, 1867; see Dodd, Modern Constitutions, vol. 1, p. 75.) The various elements, with their respective numbers in 1910 (from Ogg, p. 465), are as follows—

(1) Princes of the Imperial family who are of age, 15. (Sec. 2);

(2) Nobles of high rank qualified by the possession of large estates and nominated to an hereditary seat by the Emperor, 74. (Sec. 3);

(3) Ecclesiastics of princely title inherent in their episcopal seats, 10 archbishops and 8 bishops. (Sec. 4); and

(4) Persons nominated by the Emperor for life in recognition of special service rendered to the State or Church or unusual distinction attained in literature or science, 159. (Sec. 5.)

By the law of January 26, 1907, the number of members in the last-mentioned group may not exceed 170 nor be less than 150. Within these limits the power of the Emperor to create life peers is absolute. The prerogative has been used several times to facilitate the passage of measures the Government was bent on. (Ogg, p. 466.)

The privileges and powers of the Herrenhaus are co-ordinate with those of the Abgeordnetenhaus, save that Money Bills and Bills fixing the number of military recruits must be presented first in the Lower Chamber. (Ogg, p. 465.)

HUNGARY.

Number.—The Table of Magnates (Förendihaz) is variable in number. At the session of 1910-11 it had 387 members. (Ogg, The Governments of Europe, p. 492.)

Method of Appointment.—The membership is exceedingly complex, resting on the various principles of hereditary right, ex-officio qualification, royal nomination, and election. It is essentially a perpetuation of the ancient Table of Magnates which in the 16th century began to sit separately as an aristocratic body. Law VII of 1885, altering the organization of the Table of Magnates (see Dodd, Modern Constitutions, vol. 1, pp. 100-104), embodies with slight modifications the traditional composition of the Chamber. (Ogg, p. 492.) Under this law the members (with their respective numbers in 1910-11 as given by Ogg) are those who sit by virtue:

(1) Of hereditary right; archdukes of the royal family of full age, 16; and male members of the Hungarian nobility of 24 years of age with property qualification, that is, paying a land tax of 6,000 crowns annually, 236 (secs. 1, 2);

(2) Of their rank or office; curators of the Crown, standard bearers of the Kingdom, 15; presidents of the Supreme Court, 2; dignitaries of the Roman Catholic and Oriental Greek Churches, 42; representatives of the Protestant Churches, 13 (secs. 1, 4);

(3) Of their appointment for life by the King, made on the proposal of the Council of Ministers in recognition of merit, 60. The number appointed for life hereafter is not to exceed 30 (secs. 1, 5);

(4) Of election by the Diet of Croatia-Slavonia, 3 (sec. 1).

Hungary has what amounts to the parliamentary system, with responsible government. Its constitution like the English is embodied in a maze of ancient statutes and customs and is the distinctive creation of a people possessed of a rare genius for politics and government.

In practice the Upper House is distinctly subordinate to the Lower, to which alone the Ministers are responsible. Any member may acquire by due process of election a seat in the Lower Chamber and the privilege is one of which many peers are not reluctant to avail themselves. Upon election to the Lower House a peer's right to sit in the Upper Chamber is of course suspended, but when the term of service in the popular branch has expired the prior rank is revived automatically. (Ogg, 489-493.)

ITALY.

(References are to the constitution, or statuto fondamentale del Regno, granted March 4, 1848, by King Charles Albert to his Piedmontese subjects and continued through the Italian union and down to the present without change; Dodd, Modern Constitutions; Ogg, The Governments of Europe.)

Number.—There is no limit to the number of members who may be appointed to the Senate (Senato). In 1910 there were 383.

Term of Office.—The term is for life. (Const., art. 33.)

Method of Appointment; Qualification.—Senators are appointed by the King. He is restricted by the necessity of taking all appointees from twenty-one stipulated classes of citizens, which may be reduced broadly to three

(1) High officials of Church and State;

(2) Persons of fame in science or literature, or who by any kind of services or merit have brought distinction to the country; and

(3) Persons who for at least three years have paid direct property or business taxes to the amount of $600.

Adjustment of Disagreements between the Houses.—There is no provision for the settlement of disputes between the Chambers. But, as seen, there is no limitation on the number who may be appointed to the Senate, and it said that on several occasions the prerogative of appointment has been exercised for the specific purpose of influencing the political complexion of the upper chamber. (Ogg, p. 369.)

The same writer observes that Italy has the Parliamentary system—perhaps nearer to the English than any other European country.

Proposed Reform of the Senate.—A commission appointed to study reform of the Senate reported in 1910. It proposed a carefully-considered scheme for the popularizing and strengthening of the senatorial body. The substance of the plan was in brief:—

(1) That the chamber should henceforth be composed of 350 members;

(2) That the membership should be divided into three categories, designated respectively as officials, men of science and education, and men of political or economic status; and

(3) That members of the first category, not to exceed 120, should be appointed, as are all members at present, by the Crown; but members of the other two should be elected by fifteen special colleges so constituted that their membership would represent actual and varied groups of interests throughout the nation. The professors of the universities, for example, organized for the purpose as an electoral college, should be authorized to choose a contingent of thirty representatives. Other elements to be admitted to a definite participation in the elections should include former deputies, large taxpayers, provincial and communal assemblies, chambers of commerce, agricultural societies and workingmen's associations. The primary idea of those who proposed the scheme was that through its adoption there would be established a vital contact between the Senate and the varied forces that contribute to the life of the nation.

The Senate voted not to approve the commission's report. It is said to be not improbable, however, that some such plan of modernization as was prepared by the Commission of 1910 eventually will be reached. (Ogg, pp. 373-4.)

NORWAY.

(References are to the Eidsvold Constitution of Nov. 4, 1814, which may be found in Dodd, Modern Constitutions, vol. 2, p. 123; and to Ogg, the Governments of Europe.)

Number.—The Lagthing, or Upper House, consists of one-fourth of the total number of members elected to the Storthing (*i.e.*, Parliament as a whole). The whole number is 123; the number of the Lagthing therefore 31. (Const., art. 73; Ogg, p. 581.)

Method of Election.—Members are chosen simply to the Storthing, or Parliament, as a whole. There are forty-one urban and eighty-two rural districts and each district returns one member. (Art. 57-59.) At its first regular session following a general election the Storthing divides itself into two chambers. A fourth of its membership is selected by the Storthing to constitute the Lagthing (the remaining three-fourths compromise the Odelsthing). This division holds until the succeeding election. (Const., art. 73; Ogg, p. 581-3.)

Elections to the Storthing are direct. Each political unit having a municipal government of its own comprises a voting precinct. If at the first ballot no candidate in the district receives a majority of all the votes cast, a second ballot is taken, when a simple plurality is decisive. (Art. 59; Ogg, 582.)

Term of Office.—Elections take place every third year. (Art. 54.)

Qualifications.—A representative must be 30 years old, a resident within the kingdom for ten years, and, unless he has been a Minister or Councillor of State, a qualified voter in the election district for which he is chosen. (Art. 61.)

Qualifications of Electors.—There is universal manhood suffrage and a large measure of female suffrage. (Art. 50; Ogg, p. 581.)

Adjustment of Disagreements between the Houses.—The structure of this legislature, comprising essentially a single body, which, however, for purely legislative purposes is divided into two chambers or sections, is unique and it represents a curious cross between the principles of unicameral and bicameral organization. All Bills are presented first in the Odelsthing. Only in the event that a measure passes the Odelsthing is it presented at all in the Lagthing, the sole function of the latter being to act as a check upon the larger chamber. The Lagthing may either approve or reject but may not amend Bills. A measure rejected is returned with reasons for rejection. Three courses are then open to the Odelsthing: to drop the measure, to submit it in amended form, or to re-submit it unchanged. When a Bill has been twice presented to the Lagthing and twice rejected the two chambers are convened in joint session and in this consolidated body proposals are carried by a two-thirds vote.

Norway has the parliamentary system.

SWEDEN.

Number.—The Upper House of the Riksdag consists of 150 members. (Ogg, p. 59; Dodd, vol. 2, p. 232.)

Method of Election.—The members are chosen by ballot after the principle of proportional representation, by the twenty-five Landsthings or provincial assemblies, and by the corporations of five of the largest towns. These electoral bodies are arranged in six groups, in one of which an election takes place in September of every year. Their own election to office is direct, and on the proportional system. (Ogg, p. 591-592; Dodd, vol. 2, p. 232.)

Term of Office.—The term is six years, part of the Chamber being elected every year as shown above. (Ogg, p. 591.)

Qualifications.—A member must be of Swedish birth, 35 years old, and during the three years prior to his election must have owned taxable property valued at 50,000 kroner or paid taxes on an annual income of at least 3,000 kroner.

Adjustment of Disagreements between the Houses.—Both Houses have an equal competence in legislation and finance, but financial disputes are submitted to a common vote of both Houses sitting together, and in this joint sitting the 230 members of the Lower Chamber have the majority.

It is said that the responsibility of ministers lies so much more directly to the King than to the legislature that what is commonly understood as the parliamentary system can hardly be said to exist in Sweden. (Ogg, p. 591.)

THE SECOND CHAMBER PROBLEM IN GENERAL.

A more exhaustive survey of the constitution and practice of Second Chambers than is within the scope of this paper may be had by reference to the appended bibliography. This list of authorities will be found also to comprehend the best critical consideration of the general Second Chamber problem, showing the operation of the various systems and in what respects defects and difficulties have made themselves manifest.

"The most striking general fact," one observer says, "is that practically everywhere there is a recognized Second Chamber problem, and nowhere has that problem been solved. Everywhere there is dissatisfaction and irritation, a feeling that the secret of combining constitutional stability with legislative efficiency has not yet been discovered. A large number of experiments have been and are being tried, but the most that can be said for the best of them is that they give a little less general dissatisfaction than the rest." But to undertake to state the defects and difficulties that have manifested themselves is in reality to go about an inquiry into what constitutes the ideal Second Chamber. This is to enter a field that is peculiarly one of opinion, and one moreover in which political temper and theories of the social union play a large part. Nor is opinion on the subject susceptible of statement or summarization in general, universal propositions; for each system, for each country, the question is conditioned by its own setting of tradition, of habit, of political thinking and so on. For these reasons it would seem of extremely doubtful value to attempt to recapitulate here what has been written on the subject. Reference is therefore made to the following works as affording opportunity for an independent and thorough survey of the question:—

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REPORT

OF

THE ROYAL COMMISSION

ON

PENITENTIARIES

PRINTED BY ORDER OF PARLIAMENT.

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1914

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REPORT OF ROYAL COMMISSION ON PENITENTIARIES.

HONOURABLE C. J. DOHERTY,
Minister of Justice,
Ottawa, Ont.

SIR,—Your Commissioners, appointed by Order in Council, August 25, 1913, to investigate the state and management of the Kingston Penitentiary, &c., have the honour to present their report.

The terms of the commission, as set forth in the report of the Committee of the Privy Council, are as follows:—

The Committee of the Privy Council, on the recommendation of the Minister of Justice, advise that GEORGE MILNES MACDONNELL, K.C., of Kingston; FREDERICK ETHERINGTON, M.D., of Kingston, and JOSEPH PATRICK DOWNEY, of Orillia, be appointed Commissioners under the provisions of Part II of the Inquiries Act, to investigate and report upon the following matter:—

(*a*) The state and management of the Kingston Penitentiary;

(*b*) The conduct of the officers and employees of said penitentiary, so far as the same relates to their official duties, and

(*c*) Generally, the subject of the conduct and administration of penitentiaries, including such methods as may conduce to the permanent reformation of the convicts, and, without prejudice to the punishment which convicts should properly undergo and without undue burden upon the public funds, tend to mitigate as far as may be found possible the sufferings entailed by their confinement upon those dependent upon them.

Provided that the inquiries under paragraphs (a) and (b) shall not extend back over a longer period than five years, except insofar as the commissioners may deem it desirable, in the public interest, to inquire into any particular matter or matters antecedent to such period.

Pursuant to the foregoing instructions, we began our sittings at Kingston on September 19, 1913, and continued them at intervals until March 27, 1914. The witnessses examined included the Inspectors of Penitentiaries, officers and guards and ex-employees of the Kingston Penitentiary and several inmates of the prison. Sessions were also held at Toronto, where evidence on the general question of prison management was adduced.

To acquaint themselves with the methods employed in other prisons, your Commissioners visited some of the leading penal institutions of the United States. These included the State Prison at Stillwater, Minnesota; Farm Colony, Cleveland, Ohio; State Reformatory, Mansfield, Ohio; House of Correction, Detroit, Michigan; State Reformatory, Concord, Mass.; State Prison, Charlestown, Mass.; Women's Reformatory, Framingham, Mass.; State Prison, Auburn, N.Y.; and State Reformatory, Elmira, N.Y. We also had the privilege of inspecting the Provincial Reformatory at Guelph. At all these institutions, your Commissioners were treated by the wardens and other officials with the greatest kindness and courtesy and every facility was cheerfully afforded them for prosecuting their investigation. Profitable interviews were also had with leading authorities not actually engaged in prison administration. Among these, we may mention Dr. Charles R. Henderson, Esq., American

Representative at the International Prison Congress; Dr. Healy of the Juvenile Psychiatric Clinic, Chicago; Hon. Harris B. Cooley, Commissioner of Public Welfare, Cleveland; Frank M. Randall, Chairman of Prison Commission, T. M. Osborne, Chairman of New York Prison Commission, Dr. E. Stagg Whitin, Secretary New York Prison Commission; Hon. W. J. Hanna, Provincial Secretary, Ontario; S. A. Armstrong, Esq., Assistant Provincial Secretary; Dr. Bruce Smith, Inspector of Prisons and Hospitals; Dr. C. K. Clarke, Superintendent, Toronto General Hospital; Major Fraser of the Prisoners' Aid Department of the Salvation Army, and Colonel Irvine, Warden of the Kingston Penitentiary.

The views of organized labour on the industrial phase of the question were ably presented by J. C. Watters, Esq., President of the Dominion Trades and Labour Congress; James Watt, Esq., President, and R. J. Stephenson, Esq., delegate of the Trades and Labour Council of Toronto. To all these gentlemen, your Commissioners desire to return sincere thanks for their valued information and assistance.

THE PURPOSE OF KINGSTON PENITENTIARY.

On the 6th of March, 1834, the Parliament of Upper Canada passed an Act "for the maintenance and government of the Provincial Penitentiary opened near Kingston." An extract from the preamble of this Act reads as follows:—

> "Whereas, if many offenders convicted of crimes were ordered to solitary imprisonment, accompanied by well-regulated labour and religious instruction, it might be a means, under Providence, not only of deterring others from the commission of like crimes but also of reforming the individual and inuring them to habits of industry, etc., etc."

The institution remained under the control of the old Provincial Parliament until Confederation, when it was assumed by the Federal Government and became a prison for long-term offenders. From the date of its establishment down to the present time, the terms of the Act, as far as the treatment of the inmates is concerned, appear to have been fairly well carried out. Solitary imprisonment, labour and religious instructions have been the only agencies employed for the reclamation of the unfortunates. The first of these three has always been a prominent feature of the discipline. Probably in no prison on the continent do the working population spend as many hours alone in their cells as they do in our Dominion penitentiaries. They leave their cells to work and they return to them to eat and meditate and sleep. On Sundays the single break in the monotony of life in the cell is the hour of Divine service, and when a holiday falls on Monday that hour is the only relief enjoyed for two whole days and two nights. We feel, therefore, we are justified in saying that the theory of "solitary imprisonment" as a deterrent and a reformative agency has been given a thorough trial in our penitentiaries.

Labour, the second corrective influence stipulated in the Act, has also been rigidly insisted upon. Years ago, when there was a system of productive industries in the penitentiaries, the intention of the Act to provide "well-regulated labour" was, no doubt, fairly carried out. The abandonment of these industries has made it physically impossible to employ the population at "well-regulated labour." The only excuse for the stone pile, for the product of which there is no pressing need, is that there is no other way of keeping the men at work. The idea that the prisoners must work at hard labour all the time they are outside their cells, even if the product of their labour is of no value, has been carried to the extreme. It was urged by one of the inspectors, as an excuse for not giving a reasonable period to the education of the illiterate during the day time, that the school would interfere with the labour of the prison. If an hour

or two every day were given up to school for some and exercise in the yard for others, less stones would be broken, 'tis true. But some men, whose spirits are being crushed, and whose manhood is being debased, might be saved to future good citizenship if a civilizing help in the way of a school or a breath of the open air each day could be introduced to brighten their lives.

The religious instruction contemplated by the Act has been faithfully given by a Protestant and a Roman Catholic chaplain. Worthy and devoted men have been and now are in charge of this work, and insofar as spiritual ministrations can have a good effect amid conditions calculated largely to develop moroseness and resentment, they are doing good work.

THE BUILDINGS.

The buildings of the Kingston Penitentiary are of limestone, taken from the institutional quarries. The main building, which is situated in the centre of the plot, has three cell blocks—east, west, and south wings—completed. The north wing, now occupied as officers' quarters, is to be reconstructed for a cell block. The east and west blocks have 152 cells each; the south, 144. Attached to the east wing is an hospital with 36 cells. On the extremity of the west wing are the kitchen and bake-room, and above the latter the Protestant and Roman Catholic chapels. The female prison is in an enclosure west of the main entrance, and is well isolated from the other buildings. South of the main building are the workshops, built in the form of a cross. These comprise, in the west wing, a stone-cutting shop on ground floor, tailorshop and shoe shop above. In the east wing is the blacksmith shop with the carpenters, tinsmiths and painters on the second floor. The boiler-house and dynamo rooms occupy the north wing; and the laundry and change rooms the south. On the west of the rectangle separating the cell houses from the shops is the hospital of the insane, with 46 cells; while the prison of isolation, with a capacity of 114, is on the opposite side of the yard. Behind the prison of isolation the stone-breaking shed is situated.

In the interior construction, what is known as the Auburn system has been closely followed. The cell blocks are in the centre, with the corridors on the outside. The chief argument in favour of the inside cell is the added security which two walls, or sets of bars, afford. From the hygienic standpoint, outside cells are to be preferred, as they are more easily ventilated and have direct sunlight instead of being lighted from the corridor. The only example of the outside cell construction that your Commissioners were privileged to observe was at the Provincial Reformatory at Guelph, which promises to become the model prison of this continent.

The cells throughout the institution have, under the direction of Inspector Stewart, been enlarged, proper sanitary equipment installed, and the lighting and ventilation improved. With the exception of the hospital and asylum divisions, which are dealt with elsewhere, the cells blocks are as good as the structural character of the building will permit. All the cells were clean and the bedding properly looked after. The cells in the prison of isolation are superior to those in the central cell house.

The conditions in the workshops were found to be fairly satisfactory. Like the rest of the buildings they are old style structure and their lighting and ventilation could be improved. The ceilings are high and there was no evidence of congestion of workers in any particular shop. To this statement, exception must be made in the case of the stone-breaking shop. Every feature of that department was bad. The atmosphere was charged with stone dust and there was apparently no adequate provision for carrying it away. The closets, situated at one end of the buildings, were poorly constructed and foul-smelling. Over seventy prisoners, some of them mere boys, were at work in this department when the Commissioners made their visits. They were arranged in rows, facing each other, and the stone to be broken was piled in a long heap between them. As the raw material was reduced to the required size, fresh supplies were wheeled in by tenders from the yard. There was perfect order

among the men. Not a word was spoken. But the monotonous raps of the hammers, the sullen, whitened faces of the forms, half crouching over their unhealthy, unprofitable, degrading tasks, were a mute but powerful denunciation of the system that permitted, or rendered necessary, such an outrage. Nothing has been said, nothing can be said, in defence of this twentieth century reproduction of the unceasing moil of the galley-slave.

A CONVICT'S EXPERIENCE.

To give an idea of the regulations of a Canadian penitentiary, it might be well to follow a convict through some phases of his experience. When he arrives at the prison, he is taken before the warden for an interview and then handed over to the chief keeper. That officer records his measurements and other physical characteristics in a book kept for the purpose. The personal belongings, jewelery, money, etc., of the prisoner are inventoried. Then he is put in charge of the chief keeper's officer for a bath, hair crop and shave. Finally he is dressed in the prison garb with his number on the back of his coat.

Assigned his cell, the convict takes his place in the routine of the prison. He rises at six-thirty in the morning, washes himself, makes his bed, and at seven marches out for breakfast. This he receives in a tin vessel as he moves with the line past the serving boards in the kitchen. Returning to the cell, he eats his meal with a spoon. Knives and forks are not allowed. As he goes out to work, he deposits his dish and spoon in the kitchen. At noon he takes up his dinner as he passes to his cell. There he pulls the meat apart with his fingers, eats it, and carries back the empty vessel to the kitchen as he goes to work. When he quits his labours at night, the performance is repeated. He snatches his supper on his way to the cell and there remains until the following morning. Silence is the rule throughout the day. He must not speak to an officer or fellow convict while at work "except from necessity or with respect to the work." He must not speak nor look around while in line and of course he has no one to speak to in his cell. Thus the man's life in prison is divided between the cell and work shop or stone pile, with not even a break in the monotony at meal time. In his cell he is not allowed pictures or photographs of his relatives; he is not allowed to have or read a newspaper, but he is furnished books from the prison library. If he is unable to read, he must put in fourteen hours of each day alone, sleeping or meditating. On Sunday, the whole day—with the exception of one hour for Divine service—is spent in the cell, and when a holiday falls on Monday, he celebrates it with an additional twenty-four hours of solitary confinement.

A convict whose conduct is satisfactory may receive visits from members of his family once in three months and may write to members of his family once in two months. He may "receive letters from relatives or friends, but such letters must be short and devoted exclusively to family or business matters." No enclosure such as newspaper clippings, pictures, cards, stamps, etc., are delivered. Christmas boxes, hampers or packages of fruit, food, or confectionery are not permitted to be sent to the prison."

Thus it will be seen the daily round of the penitentiary offers little to stimulate or encourage the well-disposed convict. On the contrary, its silence and solitude must breed moroseness and resentfulness. One convict said to us (page): "If a man is battered down until he feels that he is nothing much more above the beast, how can you expect him to go out feeling better? It requires a very strong will to keep you from feeling that you are finished."

The remission of sentence for good conduct offers some encouragement. This is determined by the warden, and is not allowed until after the expiry of the first six months of imprisonment. A report for any infringement of the regulations may lose the prisoner his remission.

THE DEPARTMENT FOR WOMEN.

The dozen women prisoners are housed in a new and suitable building, separate and distinct from all other buildings. It appears that this department is conducted

in a satisfactory manner. Yet it should be stated that the interests of all concerned would be best served if these few inmates were transferred to an institution for women. It may be possible that, as has been suggested elsewhere in this report, in connection with certain other classes, arrangements might be made with the provincial authorities for the custody of all female offenders.

THE SCHOOL.

The indifferent attempt to improve the illiterate at Kingston Penitentiary can scarcely be dignified by the name of school. On four days in the week, the convicts who are disposed to attend class are lined up, when they have finished their dinner at 12.15, and marched to the school. They have to be back in their cells at one o'clock, so that half an hour, or at most not more than forty minutes, is available for their instruction each day. The reasons given why the time for school is taken from the noon rest hour are: (1) That the judge who commits a man to the penitentiary 'condemns him to hard labour and sentences him not to go to school,' and (2) that it would be discrimination to send some convicts to school during working hours and leave the others at their regular labour (Inspector Stewart, page). This view is supported on the theory that it is not the duty of the State to give education to the illiterate who find their way into prison; they are sent to prison to labour and they must put in the regular hours of work, whether there is any value in the product of their labour or not. From this view your Commissioners emphatically dissent. The lack of elementary education may have been a contributing factor to the downfall of many prisoners. At any rate, it is a serious handicap in life and must be felt with particular severity by the man who, quitting prison and weighted with the burden that incarceration has left upon him, is anxious to make an honest living. What we have said elsewhere must be repeated here: The State's duty to the prisoner does not end with his punishment; it should employ all reasonable means to reform him and make him an honest contributor to the wealth of the nation, instead of continuing a charge upon its financial resources. On no higher ground than the material interests of the State, the education of illiterate young prisoners is, therefore, desirable. But the humanitarian side of the question cannot be ignored. If we are to maintain our penitentiaries as schools of crime, all education—intellectual and industrial—should be barred. Ignorance and inefficiency and a penitentiary experience must broaden the way that leads to a confirmed criminal career. On the other hand, the school in prison has opened the door of hope to many a convict. When he learns to read and write he is laying the foundation of a self dependence that, strengthened by honest resolves, will be a strong inspiration to him to live a better life. Fail he may, and fail many of them do, but it is our duty to give him a fair chance in the hard struggle for rehabilitation.

There does not appear to be much force in the objection that a school during working hours means discrimination against those who do not require education. The prejudice against special treatment for any prisoner or class of prisoners has existed since the days of the treadmill. Then all went through the same monotonous daily grind. The inauguration of diversified prison industries began the era of discrimination, for it became necessary that some men should do disagreable work while others were engaged at attractive occupations. There is discrimination in every one of our penitentiaries to-day, and this discrimination becomes more pronounced if we are to offer any encouragement to the man who is anxious to improve himself and adjust his future life to the requirements of law and order.

A school during the afternoon, taking two classes each day, would meet the situation. The teacher's time might be occupied with other duties during the morning. These are details, however, that can be easily worked out, once it is decided to establish a proper school in each penitentiary.

THE DEPARTMENT FOR THE INSANE.

On the occasion of their first visit to the Insane Ward, your Commissioners were surprised to find, on a beautiful September afternoon, some forty patients congregated in one room. When the guards were asked why these men were not taken out for exercise, no satisfactory reply was forthcoming. This and subsequent evidence seemed to indicate that in relation to the care of the insane, the course followed was the one which gave the least amount of trouble to those in charge. Indeed, a cursory inspection and inquiry were sufficient to show that in regard to accommodation, medical oversight and general care and treatment, a thorough investigation was needed. In order to obtain an expert opinion upon these matters, Dr. E. H. Young, Assistant Superintendent of Rockwood Hospital for the Insane, was engaged to make a special report. From this report, we quote:

"*Condition of Insane Ward.*

> "The building in which the insane are at present housed is, in my opinion, entirely unsuited to the purpose for which it is used. It is defective in structural arrangement, lacking in nursing and medical facilities and devoid of means of providing occupation. The physical condition of the patients shows the effect of improper diet, insufficient exercise and fresh air. Each patient is locked in his cell, without proper sanitary conveniences from 4 p.m. to 7 a.m.; the door of each cell is simply a grating, and there is no provision for the isolation and care of noisy and filthy patients. There is no provision for the proper classification of patients, all of whom are gathered together in a large day room, the acute with the chronic, the old and helpless with the impulsive and violent, the lucid with the demented."

As long ago as 1886, a British alienist, Dr. Hack Tuke, made the observation that "for criminals of the worst class this building is no doubt admirably suited, but it is astonishing that it should have been constructed for lunatics in recent times."

The Warden, in his annual report for 1908, described the conditions in these words: "To this miserable abode, the most antiquated of our prison structures, are consigned the irresponsible unfortunates whose crimes led to insanity or whose insanity led to crime. The cells remain as they were originally constructed, while every other cell-block has been demolished and rebuilt with compartments twice the size of the old one and equipped according to modern ideas of sanitation and comfort. This ward for the insane runs parallel with the prison wall between which and the buildings runs the exercise yard allotted to the inmates. Stone wall to the right of them, stone wall to the left of them, stone wall in any direction they may look unless they look upward to the sky. In winter and during inclement weather, the few hours they are released from their cells they spend in one large, dingy, unsanitary room where they mingle promiscuously, with no entertainment except reading and playing checkers. They have no hospital oversight, no trained attendants, nothing in fact but prison police who lock and unlock the doors and follow them into the yard and back again to their cells in endless, monotonous routine. The medical superintendent, who is prison surgeon, makes a hurried call once a day (Sundays excepted), this constituting the whole care and treatment of the criminal insane."

There was no attempt made in any quarter to question the truth of these statements.

From Dr. Phelan's examination *re* Dr. Young's report. Page :

> "Q. To the substance of this report you have no objection?—A. To the main substance I have no objection."

And in a communication to the Commission the surgeon states:—

> "I also agree with the remarks in reference to the unsuitable character of the present building and its surroundings and the impossibility it presents to the proper housing, segregation and treatment of the insane convicts."

Further, he says:—

> "It must be admitted that the system and conditions at present existing in the Kingston Pentientiary generally are in a great measure behind the times, and that such reformation must necessarily be made as will be in consonance with improved methods."

Inspector Stewart tacitly admits the correctness of these views:—

> "Q. The building in which the insane are housed is entirely unsuited for the purpose for which it is used?—A. I did not think it was suitable and I believe suitable provision cannot be made within the walls of the penitentiary.
>
> "Q. Don't you think you should have urged more strongly the improvement of these conditions?—A. I do not think insane men should be kept in there."

And again he says:—

> "I admit they (*i.e.*, the conditions) are not right, but I do not believe the men (*i.e.*, insane should be here at all."

There is admittedly a close relationship between mental deficiency and insanity and crime. The proportion of defectives shown by an investigation reported by the Russell Sage Foundation in the Reformatories of New York, New Jersey and Illinois, is thirty per cent. In the Bedford Reformatory for women, the Industrial Schools of Lancaster, etc., and Baltimore, one-half the number of inmates is found to be defective. In our country, this aspect of the question of crime has received no consideration. No care is taken to ensure the detection of defectives and no provision is made for their custody or training. They are not understood by the court or prison officers. They are sentenced, discharged and resentenced, at great expense to the country. When free they reproduce their kind, often in large numbers— in prison they prove a source of constant worry and render the maintenance of prison discipline difficult or impossible.

As a result of the findings of a Royal Commission, the British Parliament has enacted legislation which provides for the custody of this class. See Mental Deficiency Act, 1913, sections 8 and 9, which provide:—

> "that in the case a convicted criminal is found, on medical evidence, to be a defective within the meaning of the Act, the Court may order him to be detained in an institution for defectives, and in the case of criminals undergoing penal servitude, who are found on medical evidence to be defective, they may be placed in an institution for defectives."

These questions press for consideration and the first step should be the employment of a physician trained in psychiatry, who could advise the Government in regard to these and associated questions.

Your Commissioners unreservedly condemn the provisions made for the care and treatment of the insane at this institution, the only one in the country which is supposed to be especially equipped for such a class. The conditions are primitive, indeed. "It is defective in structural arrangements, lacking in nursing and medical facilities, and devoid of any means of providing occupation." This is a bald statement of fact, and many an unfortunate must have been deprived of a fair chance of recovery by reason of the State's unpardonable neglect.

Further, we find that the insane inmates have not received the attention which their state demanded, and, in some instances, they have been subjected to unjustifiable punishments.

Proof of the first particular is given by the warden in his report of 1908, quoted above, and in the evidence of the surgeon (page):—

"Q. What special treatment are the insane convicts in the prison receiving?—A. They are not receiving any special treatment.

"Q. Are they receiving any different treatment from other convicts?—A. They are receiving just about the same treatment.

"Q. And any different treatment they receive would be from a disciplinary, rather than from a medical standpoint?—A. Yes."

Page :—

"Q. Do you only see those who report for the sick parade?—A. I ask for the others, and ask about their symptoms and anything to inform me.

"Q. What is the average number a day that you see?—A. I could not tell you.

"Q. We could tell from the book?—A. Yes.

"Q. Two or three a day seems to be the average?—A. Yes.

"Q. How often do you see every man?—A. I do not see them very often.

"Q. How do you keep in touch with the progress of the disease?—A. I inquire regarding their symptoms.

"Q. From whom?—A. The keeper.

"Q. What does he know?—A. He knows their conduct and it is by conduct that we judge the insane condition of any man, and only by conduct."

From this evidence, it is obvious that the forty odd insane patients have not been receiving the care and attention which their condition demanded. In this connection it must be noted that for the added duty of treating the insane the surgeon receives the sum of $1,000 yearly. On the other hand, it may be said in extenuation that this system has been in operation many years, and throughout the whole period had been accepted, with apparent approval, by the Department of Justice and its inspectors.

There was evidence to show that insane patients had been punished by tubbing. "Tubbing" consists of forcibly placing a convict in a bath filled with cold water, and holding him there at the discretion of the operators. An attempt was made to explain away the tubbing as a necessity, where the victims were in a filthy condition and refused to bathe; also as a substitute for the continuous bath used in hospitals for the insane to quiet excited cases. It was made abundantly clear to your Commissioners that the tubbing at Kingston was resorted to neither for sanitary nor therapeutic reasons, but as a punishment. There was no evidence to show that the tubbing had official sanction. The guards said they acted without instruction and on their own responsibility. The only official act pertaining to the practice appears to have been a notice from the surgeon, prohibiting it. Explaining this, the surgeon stated that he had heard rumours of tubbing and had thought well to issue the warning.

Apart from the inhumanity of the punishment, this tubbing performance reveals the management of the department for the insane in an unenviable light. Poor creatures, bereft of their reason, are surely entitled, even if they are criminals, to be left to the guardianship of men with some instincts of humanity.

It being generally agreed that the condition of the insane is and has been for years altogether unsatisfactory, the question "Who are responsible?" demands an answer. The responsibility falls primarily upon two men, the surgeon and the inspector. The former, in his annual reports, should have given expression to views such as he presented in his evidence before the commission. This was clearly his duty and would have relieved him of responsibility, but unfortunately a perusal of his reports leaves one with the impression that the state of the insane left nothing to be desired.

Year after year, Inspector Stewart accepted, without adverse comment, the existing conditions. When questioned upon this matter his answer is unsatisfactory. (Page):—

"If it were in my report it would not receive any attention. If you show me any report they paid attention to, then I will take the blame."

It may be fairly said that the manner of dealing with the insane is a striking criticism, not only of the individuals concerned, but also of the system of administration which has permitted such abuses to go unchallenged all these years.

The Government should employ forthwith a competent alienist, in order that he may undertake the immediate amelioration of the conditions at Kingston Penitentiary and that he may advise the Government in regard to these technical matters.

Steps should be taken to make suitable and permanent arrangements for the care and treatment of the insane, according to modern practice.

Two plans are available: It is possible that arrangements may be made with the Provincial Governments for the care of the criminal insane. This is already done in Western Canada. The practicability of such a plan does not come within the scope of our investigation. In favour of this scheme, it may be pointed out that the provinces have the entire equipment necessary for the care of the insane. Transportation difficulties would be eliminated if this plan were adopted. On the other hand, the heads of the provincial institutions would probably oppose this suggestion. In recent years, the public has come to regard the institutions for the insane as hospitals and there would be a decided sentimental objection to the admittance of those who had been convicted of crime. In reality there is no valid objection. In practice the mentally unbalanced citizen, who commits a crime, is sent to the provincial hospital if his derangement happens to be detected before he is sentenced—and to the insane ward at Kingston if his disease be not recognized until he has been for a time incarcerated.

The alternative plan which has been followed in other countries and which we think must be adopted here, is for the Dominion to build, equip, and man an institution exclusively for the criminal insane, separate from a general prison both in site and administration. It may be thought that there is not a sufficient number of criminal insane, coming under the purview of the Federal authorities, to warrant such an undertaking, but there is not the least doubt that scattered through the prison population, is a large number whose mental state warrants their removal to an institution such as is proposed. That this is the case at Kingston, we have ample proof.

THE HOSPITAL AND MEDICAL MATTERS GENERALLY.

The examination of the newcomer, both on the mental and physical sides, is conducted in a most superficial manner. There are practically no records. An individual who is to be incarcerated for a term of years should receive a thorough examination, the details of which must be carefully recorded if the labour is not to be lost. This is necessary for two reasons: First, in order that the present or subsequent illness may be treated intelligently; and, second, that the general prison population be protected against communicable disease.

For many reasons, the examination of the prisoners mentally, should be a searching one. If this had been the practice, a deal of trouble would have been avoided. As an example of what is meant, the following case may be cited:—

Convict No. P. 108. Age, 30 years.

First sentence in 1906 for rape—4 years and 25 lashes.

Discharged in 1910 and was recommitted for a similar offence within three months, with a sentence of 20 years and lashes.

Between November, 1910, and September, 1913, there were made against this man no less than sixty-seven reports for breaches of regulations. Many of these offences were visited with severe punishment, even to hosing with cold water at 60 pounds pressure. A good deal of his time has been spent in the punishment cells and in the prison of isolation.

An examination by one competent would have disclosed the fact that this was an unfortunate imbecile (page) and as such not responsible for his actions, and that any endeavour to make him conform to ordinary prison discipline by the inflic-

tion of punishment was futile—and much worse. It may be added that this is by no means an isolated case.

Further, we find that the medical service has not been sufficient. If the health of 500 inmates is to receive adequate consideration more than one or two hours' daily attendance is necessary.

HOSPITAL.

It is difficult to conceive what characteristics of the building set apart for the care of the sick at the Kingston Penitentiary warrant it being designated "hospital." There is nothing in the building or equipment which justifies the name. Some 36 inside cells, inferior in their arrangements to the cells occupied by the healthy prisoners, house those whose illness is serious enough to make necessary their admission. In these cells there is not effective ventilation, and save for an obsolete bucket for the excreta, sanitary appliances are absent. The two baths and water-closets are hopelessly out of date. Under no conditions are the patients permitted to have exercise in the fresh air, nor indeed to leave their cells for any purpose.

The operating room (so-called), where serious cases have been, and must be dealt with as they arise, has an old wooden table but no other equipment. When your Commissioners visited this room, many old books lay about the floor and the place was not clean. In all, there was a condition of affairs which should not have been tolerated. Again, there is to be noted an all but complete absence of satisfactory records. Inspector Stewart's commendation of the existing conditions can only mean that he is not competent to express an opinion upon this aspect of prison management. Although his annual reports give a different impression, the surgeon in his evidence before the Commission stated that many changes were necessary to make the hospital what it should be.

The personnel of the hospital staff does not meet with approval. There are two dispensers (called hospital overseers) who are responsible to the surgeon for the management of this department. These men do little or no nursing, this very important work being left to the convict orderlies, a practice to be entirely condemned.

We have no hesitation in reaching the following conclusions:—

> The hospital, in building, equipment, and sanitation is inadequate and out of date, and the personnel is not adapted to proper hospital administration.
>
> There should be provided a new hospital, modern in plan and equipment, and the hospital staff should be reorganized, the members to consist of: A visiting surgeon, a resident physician, two trained male nurses, and convict orderlies.

There are many reasons for such changes. It is manifestly impossible to obtain the services of a competent physician on full time, at the salary fixed by the regulations. It is taken for granted that the insane will be otherwise provided for, so that the present salary would be considerably reduced. Further, a physician in active practice will the more likely be abreast of modern methods and will be disposed to treat the prisoner inside and the patient outside with the same care and consideration. The enervating effects of a purely institutional practice are well known. The visiting surgeon would be responsible for the sick. He should visit the prison daily and attend the members of the staff at their homes.

For the office of resident physician, there should be employed a recent graduate who has a psychiatric training. His duties may be outlined thus: He should carry out the directions of the visiting surgeon; conduct and keep records of thorough mental and physical examinations of all prisoners; do laboratory work and deal with emergencies and minor ailments.

There is absolutely no need of two qualified dispensers, as at present, but there is real need of men to do the actual nursing. The nurses under the direction of the resident surgeon could do all the necessary compounding of medicines. The convict orderlies should have no part in the actual treatment of the sick. Their duties should be confined to the performance of menial work.

PUNITIVE FEATURES OF PENITENTIARY REGULATIONS.

Reference has already been made to some of the regulations of Canadian penitentiaries that stamp them as purely punitive. A more detailed analysis of this feature of the system may be in order. The cellular system of feeding is defended on two grounds: (1) To remove the danger of organized revolt; and (2) it is preferred by the majority of the prisoners.

Of all the prisons that your Commissioners visited, in only one did they find the cellular system of feeding in operation. That was the old State prison at Charlestown, Mass. In no prison where the congregate system is in vogue, was the danger of mutiny considered a serious possibility. And this too in face of the fact that in some of those prisons the proportion of guards to population was one to ten, while at Kingston it is about one to six. The fact is, that the more closely the treatment of the prisoner approximates the treatment of the free man, the less likelihood is there of individual or organized outbreaks of violence. When men are allowed to sit down to a table and eat with knife and fork like civilized beings, they are in a more equable frame of mind than if they are made to carry their food to their cells and tear it to pieces with their fingers.

The second argument in favour of the cellular system would seem to have more justification. One or two convicts, testifying before the Commission, said they preferred eating in their cells to sitting down with the others at a table. The reason they gave was the possibly disgusting conduct of a prisoner seated beside them. Here again comes the question of classification. It has not been urged that in a dining room the prisoners should be arranged without regard to their conduct. The privilege of a dining room should be denied men who are under the ban for bad conduct or who will not comport themselves with reasonable propriety at the table. In other words, a place in the dining room should be made a reward for good behaviour.

A weak feature of the cellular system of feeding is its wastefulness. The portions of food allotted are too generous for some men and possibly not sufficient for others. We saw a great deal of food brought back in the pans from the cells after dinner. A convict who had worked in the kitchen said that it looked to him "as though about half of everything came back on certain days." He placed the average waste at from 25 to 30 per cent. This view was concurred in by Dr. Platt, though he did not offer any estimate as to the proportion of waste.

The close cropping of prisoners' hair is a regulation as old as the oldest prison. Originally, it was designed as a mark of disgrace. Now it is defended for sanitary reasons. Undeniably, in some cases, it is necessary to crop prisoners' hair on admission and keep it cropped probably during the whole period of confinement. Such cases, we are inclined to believe, form a small minority of any of our prison populations. The cleanly, well-ordered prisoner should surely not be subjected to the indignity of hair-cropping, just because there are some fellows in prison who must be so treated for sanitary reasons. In prisons where close cropping of the hair as a regulation has been abandoned, the personal cleanliness of the prisoners is as efficiently maintained as it is in our penitentiaries. One convict was asked (Page) what was the greatest humiliation that he suffered since he entered the prison and his reply was: "I think cropping my hair was the worst."

The prison garb is made of a red checked material as distinctive and almost as conspicuous as the stripes formerly worn. Though it has been represented to us that women had "expressed the wish on the street that they could get a golf suit made like it" (page) and that it is "no more degrading than the costume of any huntsman or football player or oarsman (page), your Commissioners are of the opinion that the present uniform is unnecessarily conspicuous. The colours in it may be as pronounced as in a football uniform, but the humiliation lies in the fact that these colours are not the insignia of membership in an athletic organization, but are the brand of the convict's shame. The one costume represents honour; the other, dishonour. "I think the uniform is terrible" said one of the convicts to your Commissioners. Any prison uniform must be terrible to the man who appreciate his position, but the question is: Is it necessary to lay it on in flaring colours? A one tone material, grey or blue, such as is being used in all the prisons we visited in the United States and at the Provincial Reformatory at Guelph, should meet the disciplinary requirements of our penitentiaries. Stripes or checks are not considered necessary there to aid in identification and recapture. Why should they be necessary in our Federal prisons?

The regulation that no newspaper shall be allowed within the prison walls has been adopted, we are told, to prevent convicts getting information about the movements of their pals outside. This rule is in harmony with the avowed policy of the administration that the regulations of the penitentiaries are designed solely for the confirmed criminal. Because there are some men in prison who are determined to resume a life of lawlessness, and because these men might obtain from a newspaper information that would aid them in their evil designs, the entire population is debarred from reading any news of the doings of the outside world. That this deprivation heavily handicaps a man when he tries to resume the ordinary activities of life, is beyond question. The world into which he is thrown has been a sealed book to him for years. He knows nothing of its political changes, of the progress that has been made in social, industrial, or scientific development. He has been "as a deaf man who heard not, as a dumb man not opening his mouth." His very ignorance must intensify his fear of exposure and the ostracism that inevitably follows. Had he been allowed, while in prison, an occasional glance at a weekly newspaper, he would not now be such an utter stranger to world events. He could move among and converse with his fellows, with some confidence and intelligence.

The danger of allowing a weekly newspaper into the penitentiary appears to have been greatly exaggerated in the official mind. It should be possible, without much trouble, to censor the criminal news which occupies a very insignificant space in the family newspaper. But if there is danger of valuable news to the professional criminal leaking in, there is a more than compensating benefit to the man who is longing for another chance to make good in the world. What a comfort the newspaper would be to many an unfortunate fellow in the solitude of his cell, can scarcely be comprehended. It would break the gloom of his isolation, keep him in healthful relations with the life, that through his weakness or wilfulness he has forfeited, and, no doubt, strengthen his desire to restore to good standing in society.

The prohibition of tobacco is, to many prisoners, a severe punishment. Those who have been life-long users of the weed would, it is said, preferably undergo almost any other privation. Certainly the absolute prohibition of tobacco is likely to make them morose and resentful, and more difficult to manage than they otherwise would be. Apart from the effects of a moderate issue of tobacco in producing a better spirit among the prisoners who use it, your Commissioners are convinced the illicit traffic is a greater evil than the one it displaced. One convict testified that he had received from friends, through a guard, $160 in tobacco money in two years; that the guard had retained for his own use half the money and had charged 20 per cent commission for purchasing tobacco with the balance. In only two instances were your Commissioners

enabled to bring home to the dishonest guards proof of their guilt. These cases were reported to the warden to deal with. That other guards have been extensively engaging in the tobacco graft, is beyond question, but it was impossible to get direct evidence of their guilt. Much may be said in support of the prohibition of tobacco to prisoners, but your Commissioners believe a moderate allowance to those who are already addicted to the habit and who observe the regulations, would result in conditions more wholesome than exist at present.

PUNISHMENTS.

According to rule 179 the following punishments may be inflicted upon male convicts:—

(*a*) Diet of bread and water not exceeding twenty-one consecutive meals.

(*b*) Hard bed with blankets according to the season, not exceeding one month.

(*c*) Ball and chain, Oregon boot.

(*d*) Confinement in the isolated cells with such diet as the surgeon shall pronounce sufficient.

(*e*) Flogging with a leather paddle, under the restrictions set forth in the Penitentiary Act regarding corporal punishment.

(*f*) Shackled to the cell gate during working hours.

(*g*) The application of water from the hose, in the presence of Warden.

(*h*) Forfeiture of remission of sentence.

In addition to the foregoing, flogging, imposed as part of the court sentence, has to be inflicted. Usually the flogging is ordered to be given a short time after the prisoner is admitted and again before his release. With much reason, ex-Warden Platt urged that the flogging of a prisoner near the expiry of his term was calculated to nullify the good effects of any reformative treatment by the officials, and send the fellow out vengeful and embittered. The flogging, if it must be administered, should be given at the place of sentence and the prison authorities would then have some chance of consistently dealing with the criminal. To try to reform a man and then, whether he responds or not, lash his bare back before he leaves the prison, would appear to be an unscientific course of treatment.

The dark cell or dungeon is not mentioned in rule 179. It is used in some, if not all of our penitentiaries. At St. Vincent de Paul your Commissioners found a man in a dark cell shackled by a chain. There was little ventilation in the place, and the food, drink, and bucket of the unfortunate were all placed in the circle of his tether. The dark cell is a cruel means of punishment. The most degraded human being, if he is to be allowed to live, is entitled to light and air.

The Oregon boot and flogging with a leather paddle are no longer used as punishment. Evidence tended to show that the leather paddle was more humiliating than severe. There are on record several cases of application of water from the hose. One was nine years ago when Dr. Platt was Warden. In his evidence the doctor said he did not like the hosing and he never ordered it again. Mr. Douglas Stewart, when he was acting Warden in 1912, used the hose pretty freely. The convicts who were hosed described the punishment as terrible. The officials and guards seemed to consider it effective and not cruel. Inspector Douglas Stewart expressed himself strongly in favour of the hosing. His evidence on the point, page is as follows:—

"Q. Do I understand that you are responsible for recommending this method of punishment, the hosing?—A. I am responsible for the regulations. I introduced it after consultation with Sir Oliver Mowat, who was not a cruel man, as a substitute for the cat.

"Q. You described it nicely to Sir Oliver?—A. Yes, as it really is.

"Q. And you think it is a good thing?—A. As a substitute for the cat it is a remarkable improvement, both in effectiveness——

"Q. The cat is the triangle?—A. Yes, the lashes; that is the previous one; the one was substituted for the other.

"Q. You find this more efficient?—A. More effective.

"Q. What is it that makes it so effective with these convicts?—A. It takes the defiance out of them.

"Q. How?—A. If you got the hose you would know.

"Q. What is it?—A. I suppose it is the impact of the hose against the body, knocks the wind out of them.

"Q. And it seems to succeed where nothing else will?—A. Yes, it never failed yet.

"Q. To beat an incorrigible convict into submission?—A. Yes.

"Q. And therefore you rush for it in all cases?—A. Not in all cases.

"Q. How many times did you administer it yourself?—A. My recollection is seven times on six convicts.

"Q. How long was the longest?—A. Three minutes. It made a record. It is usually thirty seconds to a minute. Very few men who will not give in in that time. They can give up whenever they like; they can make it ten seconds if they like.

"Q. Men will surrender under this who will not under any other punishment?—A. Yes.

"Q. Is that the most severe punishment?—A. No, I think shooting is more severe.

"Q. You mean killing a man outright?—A. Yes.

"Q. That is the only thing more severe?—A. No, I think the cat is more severe and dangerous.

"Q. Why do you not use it?—A. Because I think it is not effective. This is the quickest and most effective method."

Your Commissioners had a practical demonstration of the hosing in the cell assigned for that purpose. The front corners of the cell have been rounded out to prevent the prisoner from getting out of range of the stream. A circular opening in the bars permits of the entrance and ready manipulation of the nozzle. When the water was fully turned on, the stream through the three-quarter inch nozzle struck the opposite wall almost unbroken. From what your Commissioners have seen and heard they readily agree that hosing as a punishment is effective. The victim must cry out for mercy or suffer physical collapse. But as a disciplinary agency, it should be ranked with the rack and the thumb-screw, cruel and inhuman.

IMMORALITY AMONG PRISONERS.

The charge has been made that the crime of sodomy is prevalent in Kingston Penitentiary. Three convicts gave sensational and disgusting evidence in support of the charge. In two or three instances the circumstances were described in detail. Other evidence was given of a more or less circumstantial character, and some of it was based on hearsay or conversations overheard on the stone pile. The officials and guards, without exception, either denied the existence of the practice or declared they knew nothing about it.

Your Commissioners believe that while some of the statements made by convicts were greatly exaggerated the evidence indicated the occasional commission of the offence. It is scarcely necessary to urge greater vigilance on the part of officials and guards wherever it is possible for such offences to occur.

THE CONDUCT OF OFFICERS AND EMPLOYEES.

The Five Year Limit.—The terms of our commission called for the investigation of:—

"(*a*) The state and management of the Kingston Penitentiary;

"(*b*) The conduct of the officers and employees of the said penitentiary so far as the same relates to their official duties—

"Provided that the inquiries should not extend back for a longer period than five years except in so far as the commission may deem it desirable in the public interest to inquire into any particular matter or matters antecedent to such period."

The construction to be placed upon this limitation of the inquiry came up for discussion at the beginning of our investigations and is dealt with by the Commissioners at page in the report of the evidence, in the following terms:—

"The intention of the Commission is to have an investigation of present conditions in the prison. The charges that were made refer to the present state and management of the penitentiary, and that, primarily, is the subject to be investigated. That goes without saying. The Commission is not charged with investigating what was a past condition of things, five or ten or twenty years ago; we are to investigate the condition of things to-day, it may be necessary to go beyond the time limit of five years, and that the Commission has power to do. The terms of the Commission express that quite clearly, and I do not think it could be better expressed, that where, in any particular matter, the Commission deem it in the public interest to pursue the inquiry beyond the five year limit they are to do so."

The matter came up several times in the course of our proceedings, see pages A charge was made against the Deputy Warden of "testifying falsely at investigations held at the prison;" the matter referred to occurred in the year 1898. Objection was taken by counsel for the Deputy Warden, page : "How could we answer a charge fifteen years old with witnesses dead and hard to find? Surely the provisions of the Commission were intended to protect us from that." The Commission considered that if they proceeded to investigate this matter it would be in substance a trial upon a charge of perjury alleged to have been committed fifteen years ago and necessarily depending on the present recollection of the surviving witnesses as to statements made so long ago. The matter had been the subject of investigation at the time it occurred and we did not deem it desirable in the public interest to inquire into it again. For similar reasons we declined to entertain charge (*d*) "With consorting with ex-convicts." This matter is dealt with by rule 142:—

"No officer shall without authority recognize any convict after his discharge or make him known to others, to his injury."

The matter is discussed at page :—

The five-year limit came up again in connection with a charge against Dr. Phelan of:—

"Conniving at the absence of a guard at an election trial where said guard was wanted as a material witness."

The occurrence involved took place in the year 1898. Saunders, the guard in question, got a certificate of sick leave from the doctor, it is said improperly. The certificate bears date September 2, 1898. Saunders, the principal witness, is long since dead. At this date, and considering that the matter was not one bearing upon or affecting the present condition of things, we declined to entertain this charge.

A number of matters were dealt with, extending back much beyond five years when it was deemed desirable in the public interest to do so, and the only instances in which evidence was excluded have been referred to above. The matter was fully discussed at the final sitting of the Commission, see pages .

THE EDWARDS CHARGES.

The charges made by Dr. Edwards against Deputy Warden O'Leary, are as follows::—

I charge Deputy Warden O'Leary:

(*a*) With petty and persistent persecution of guards and keepers;
(*b*) With political partisanship;
(*c*) With testifying falsely at investigation held at the prison;
(*d*) With consorting with ex-convicts;
(*e*) With gross neglect of his duty resulting in attempts at escape.

The charges, as Dr. Edwards himself says, were based mainly upon information furnished him by Major Hughes (page): "I took the action I did in regard to this matter principally because of what was said to me by Major Hughes himself in regard to every one of the charges which I have placed on the paper, that the information came primarily from him, and it was added to by complaints made from time to time in writing and verbally by different guards and ex-guards of the institution." Mr. Stewart, Government counsel, at page , also mentions Major Hughes, as the chief witness.

Major Hughes himself (page): "In my day as Chief Keeper I did not think the men had an awful lot to complain of in that kind of thing, but latterly there has been a great deal of gossip. I cannot give you that, but the rosters will show."

Of the guards and ex-guards referred to by Major Hughes in his evidence, the following were called, and a summary of their evidence on the charge of petty and persistent persecution of guards is given below:—

Name.	Pages.	Summary of Evidence.
Clyde	323–4	Not asked *re* treatment of guards.
Curtis	921	" " "
Crier	417–18	" " "
Redden	419–424	" " "
Rutherford	431–2	" " "
Godkin	591-611	" " "
James Doyle	899	" " "
Derry	868–872	" " "
Holland	927	" " "
Powell	1002–4	" " "
Robert Aikins	898	" " "
Paynter	1140–1	" " "
Madden	1192–1202	" " "
Marsh	658	There was no favouritism.
Fegg	889–892	" "
Wilson	1121–2	There are really no favourite posts.
McCuade	434–456	"I have nothing against him," meaning the Deputy Warden.
Montgomery	313–4	Complains his post was not changed as often as others.
Smith	324–364	Complains he was improperly dismissed but Deputy Warden not responsible.
George Aikins	385–416	Complains of Deputy Warden "spying" on him and reprimanding him before convicts.
Bannister	425–430	Complained of being reprimanded before guards and convicts.
Bryant	786–791	Evidence *re* complaints of no value.
Mills	792–796	" " "
Caughey	1112–5	" " "
Davis	893–7	Complaints childish.
Johnston	289–299	" "
Ingledew	300–11; 570–80	Kept note-book—willing witness against Deputy Warden—not asked *re* favouritism.
Cook	901	Nothing.
Patterson	978–1002	Blames Deputy Warden for his dismissal but can't establish it.

We are referred by counsel quite properly on this charge to the evidence of Major Hughes, page , to the rosters prepared by the Deputy, as "the best evidence in support of this charge"; also to the evidence of Dr. Platt.

The evidence of Major Hughes, thus cited, deals almost entirely with what was called "favouritism." To quote the argument of the Government counsel, "the Deputy either consciously or unconsciously has preferred guards of the same religious persuasion as himself—in giving the preference to Roman Catholics over Protestants, in assigning officers to the different posts in the prison."

After a careful examination of the roster, we cannot find that this charge is sustained.

The evidence is conflicting as to whether there are any favourite posts and what they are—Guard Fegg is the first witness named by Major Hughes, who would testify as to "favouritism." Fegg's evidence is at page and is read to Major Hughes at page :—

> "Q. You do not know that he showed any favouritism to any particular guard?—A. I could not say that any man was persecuted or that any man was shown favouritism. I cannot say that he is really shown favours."

Major Hughes says, referring to Fegg, "this man thought he was the most imposed upon man in the world."

Other guards, whom Major Hughes expected to testify to favouritism, gave evidence similar to Fegg's. For some reason, they had talked to Major Hughes in a way they could not support on the witness stand.

The evidence of Dr. Platt on this subject should have more weight than that of any other witness, as he was in a position to know the facts. His evidence shows that he himself was determined to know nothing about a guard's religion in the assignment of duties, and that he believed that his deputy was equally conscientious in the conduct of his office.

Dr. Platt was warden from 1899 to 1913. (He had ample experience to speak with authority upon this charge.) It is scarcely conceivable that he should not have discovered it, if any favouritism had been practised.

We make the following extracts from his evidence bearing upon this charge:—

> "For the assignment of positions" he says (page), "the deputy is responsible, under the Warden."
>
> "Q. And if complaints were made it would come up to you and you would deal with matters?—A. If we thought it was advisable we asked the Deputy to reconsider."

Page 538:—

> "Whenever the Deputy thought a change could be made to advantage he would mention it to me during the month previous, or if I noticed where I thought a man would be better in some position I would mention it to the Deputy.
>
> "Q. So that both you and he were trying to do what you thought best in the interests of the Institution?—A. I was and I thought he was.
>
> "Q. Then when the roster was made out towards the end of the month it was submitted for your consideration?—A. Yes, I may say invariably my signature is on every roster."

Page :—

> "Q. Were there complaints of this character?—A. I do not think I could dignify it by the name of complaints.
>
> "Q. How many times?—A. I don't know, if it occurred three or four times in my thirteen years it would be all."

Page :—

> "If I heard a complaint of that kind, even heard it casually, I would speak to the Deputy about it and advise him whenever it was practicable to avoid even

the appearance of anything of that kind, and I do not think he ever made any change. I do not think a change was ever suggested. He would simply reply by saying: 'Well, what am I to do?—Place a man according as I think he ought to be on the roll.' I said: 'Your duty is to the prison and not to the church, pay no attention to it.'

The rule governing this matter is in these words:—

"42. Subject to the Warden's concurrence, he (the Deputy Warden) shall assign to every police officer the duty to be performed by him during the day, a record of which shall be kept in the roster."

Dr. Platt says there were three of four complaints on this subject in his thirteen years of office, and he refused to interfere. The Warden considered these complaints unfounded, and there is nothing in the evidence heard by us to warrant us in saying that his judgment was erroneous.

The unfriendly relations existing between Major Hughes and the Deputy Warden were a matter of common knowledge in the prison, and some officials appear to have used this knowledge mischievously.

Major Hughes seems to have been misled by the gossip of the guards—he was recalled at the close of the investigation, and at page he says:—

"I have read in the papers, I do not know whether it is true or not, the evidence of officers that they had no complaints to make; and there is only one expression to describe it, and that is for months here they simply pawed the air with regard to complaints of the indignities that were heaped upon them and the discrimination in favour of others to their detriment, and they came up, according to the newspapers I have read in the west, and said there was no discrimination."

The charges made seem in great part the outcome of the unhappy spirit of distrust and suspicion which seems to pervade the institution, resulting apparently from the system of administration, especially in regard to appointments, political influence, religious antagonisms, and political jealousies.

Some guards have alleged grievances, imagining that they are not dealt justly with in the distribution of posts, whilst other guards say that there are no good posts, that men differ as to what posts are to be preferred. One guard complains of the Deputy "spying" upon him, when the Deputy was watching him to see if he was doing his duty. A guard, who was discharged, makes a charge of perjury arising out of a dispute in the year 1898. The evidence adduced to sustain this charge was this witness's uncorroborated recollection of a verbal statement made by the Deputy in the course of a prison investigation conducted by the Warden fifteen years ago.

Charge (b) Political Partisanship.

In support of this charge, the only contention of the counsel for the Crown was that Guard Aikins testified that "the Deputy spoke disrespectfully of Dr. Edwards, a candidate at the last Dominion election." The Deputy emphatically states that he never interfered in politics and we find that he has not been guilty of political partisanship.

Charges (*c*) and (*d*) were excluded under the five-year limit, as we have elsewhere explained.

Charge (e): That the Deputy was guilty of gross neglect of duty resulting in attempts to escape.

The particular case cited was that of Chartrand, a convict, who cut through the bars of his cell and got into the yard of the prison, and the charge is that an inex-

perienced guard and inefficient guard had been placed in supervision of this convict. This case was fully investigated at the time by the Minister, and Guards Smith and McConville were suspended for their conduct in the matter. There is nothing in the record of that investigation to indicate that the Deputy Warden was to blame and nothing was adduced before us to warrant our arriving at a different conclusion.

On April 10, 1912, Dr. Platt says, in referring to this escape, after the matter had been investigated: "A convict designated as dangerous and marked for special care escaped under circumstances which force one to the conclusion that well-known, important and imperative duties were either neglected or performed in a culpably perfunctory manner." Dr. Platt also reports the suspension of McConville and Smith in this connection, but throughout his report there is not any hint or reflection touching the conduct of the Deputy Warden in the affair.

The record of the case contains thirty pages of reports and testimony on this escape, of the warden, deputy warden, guards and keepers, etc.

The inspector's report, dated April 12, 1912, does not mention the Deputy Warden or reflect on him personally.

The Minister's judgment reflects on "the insufficiency of the right surveillance provided" and "concurs in the suggestion" that the Warden and Deputy Warden be censured for neglect to profit by the attempted escape from an adjoining cell last year," etc., etc. There is no suggestion of such censure in the inspector's report, it does not appear in the record, so that we are unable to attach to it the correct significance, but considering that this whole matter was fully dealt with and adjudicated on by the Minister at the time of this occurrence, it should not again be made the subject of a charge before this Commission. In any case, the whole record is on file and can be referred to, if, in the opinion of the Minister, the matter should be reopened.

The Grier Charge.

Comment is made by the Crown counsel on an incident mentioned in the evidence of Ex-Guard Grier, (page) who says he was on duty in the Asylum in 1906 and found Convict Bishop "trying to hang himself" and cut him down. He was then asked by the Deputy Warden why he was late in winding his clock. He explained, he says, and the Deputy Warden told him: "If I came across a convict hanging, to let him hang and attend to my clock first." Ex-Guard Marsh testifies, (page) to a similar expression from the Deputy Warden in reference to the attempted hanging of the same convict, Bishop; he (the Deputy Warden) said: "I did right to wind my clock first, it would clear me." Marsh gives no date for this occurrence, but the records show that he cut down Bishop on March 22, 1899.

These statements might indicate a callous disregard of human life on the part of the Deputy Warden—that he set discipline on high and subordinated the instincts of humanity. The statements, however, stand alone; they are not consistent with the conduct of the charged official, as shown by the evidence before us. In support of the charges against the Deputy Warden, with which we have already dealt, twenty or more guards and ex-guards gave evidence and no instance was disclosed of cruelty or inhumanity towards prisoners. The evidence of Grier is not corroborated by the prison records. The records show that Bishop attempted to hang himself on two occasions; on July 9, 1898, and March 22, 1899. On the former occasion he was cut down by Guard Davis; on the latter, by Guard Marsh. Grier does not appear in either case. There is no record of any other attempt at suicide by Bishop. If any occurred it should be in the record. Grier says he "cut down" Bishop in 1906. The records show that Bishop died of tuberculosis in 1904. Whatever the actual incident was, it must have occurred fifteen years ago, and the memory of witnesses as to the date or the actual words used is liable to be at fault. What we ourselves have seen and heard must guide us as to the value that should be attached to the alleged state-

ment of the Deputy Warden; he was for three months in this inquiry subjected to the closest scrutiny and in the light of that scrutiny, no act of his revealed that indicated he was either cruel or inhuman.

Other Charges.

The charges made by Dr. Edwards against Overseer Wilson, are as follows:—

"I hereby charge R. W. Wilson, druggist at Portsmouth Penitentiary, with wilful and repeated neglect of duty. In connection with the aforesaid charge, I ask that the following persons be called to give evidence, viz.:—

"H. S. Begg, Assistant Hospital Overseer.

"D. Godkin, Night Watchman.

"F. Ingledew."

The charges against Overseer Wilson are of the same indefinite character as the others, and have to be gathered from the evidence and the argument. He is, in substance, accused of not getting up at night to attend to dying patients, in several instances. Guard Ingledew testifies to this effect at pages . Guard Godkin at pages . Wilson's evidence in defence is found at pages.

Wilson was called for patients Bunyan, Lottridge, Eastlake and Huckle; Doctor Phelan says Huckle was a maligner, and Colonel Irvine says he is one of the worst men in the prison, entirely unreliable; the other patients are dead. Dr. Phelan's evidence exonerates Wilson from this charge, pages

Your Commissioners are of the opinion that these patients were practically beyond human aid and that in their cases no hardship was inflicted by Wilson's failure to get up to see them, yet we feel that the physician or his representative should be present on such occasions, and that there should be a regulation to this effect.

Charges were made by Overseer Wilson against Ingledew, page :

That he repeatedly failed to make his rounds of the ward, and that he slept or rested during long periods of the night, while the convicts' night-orderly was permitted the use of the watchman's keys and continued the periodical winding of the electric clock, so that it might show the proper marking when inspected by the Deputy Warden.

That he repeatedly brought into the hospital outside articles and special food, which were given to and used by convicts, and that he also supplied pipes and tobacco to convicts.

There is evidence to support the first charge given by Convicts Watson, Diehn and Mitchell, but it is denied by Ingledew, and we do not feel warranted in giving effect to the evidence of the convicts under the circumstances disclosed. The same remarks apply to the second charge.

Dr. Edwards' charges against Dr. Phelan are as follows:—

"I charge the surgeon, Dr. Phelan

"(*a*) With gross political partisanship.

"(*b*) With using violent and indecent language to a guard in the presence of others.

"(*c*) With conniving at the absence of a guard at an election trial where said guard was wanted as a material witness.

"(*d*) With grafting, by asking for and receiving money from guards, to which he had no just or honest claim."

The counsel for the Government properly says: "I do not propose to argue that the evidence adduced supports the charge of political partisanship." *Vide* discussion on five-year limit.

Charge (b).—The charge of "using violent and indecent language to a guard in the presence of others" is established, but it is claimed that it was used in jest; the evidence leaves this uncertain. In any case, the surgeon entirely forgot the dignity of his position and the discipline of the prison in making use of the language in question; and the incident discloses an unhealthy state of things. *Vide* evidence pages

Charge (c).—The Commission did not consider this charge to be within the limits of their commission. It occurred thirteen years ago. Some of the parties are dead. It has no bearing on the present state of the prison.

Charge (d).—With grafting, by asking for and receiving money from guards, to which he had no just or honest claim.

Dr. Phelan admits that in four cases he asked and received a small fee from an applicant for a guard's position as to his physical fitness, and this is a contravention of the statute, as he is not to practice his profession. He says he has not done so for several years. The amount wrongfully taken by him was $4.

The foregoing are the only charges made against Dr. Phelan by Dr. Edwards See pages .

Counsel for the Government commented on the evidence of convicts that the surgeon had been careless and unkind in his treatment of them. No charge of this tenor was made against Dr. Phelan and he was not called on to meet it. The evidence of the convicts was conflicting. Some testified that he had treated them well, others directly the reverse. The matter was left in an unsatisfactory position, and we are not able to come to any finding upon it.

The charges against H. S. Begg are:—

1. Gross carelessness in making and compounding preparations and more especially in connection with an ointment containing opium.
2. Neglect of duty in omitting to carry out orders and especially in failing to give special supplies to a convict named Lawrence on the night of his death; in contravening the orders on the diet sheet in the case of a convict named Laird; and in refusing and neglecting to give out supplies ordered to be kept under key.
3. Neglect of duty in failing to leave out food for patients called for by the diet sheet, and in leaving the building with the keys while the supplies were locked up and inaccessible until other keys were procured.
4. Insolence and insubordination with reference to the overseer, both in language and bearing to him, and to others with reference to him, and in refusing and neglecting to carry out his instructions.
5. Falsifying the records contained in the sick-officers' book.

The evidence shows that from the time of Wilson's appointment there was friction between Begg and Wilson. Begg was guilty of several minor acts of insubordination and neglect of duty.

Alterations were made in the sick-officers' book in several places, which had the effect of lessening the record of Begg's absences on account of illness. He denies having made them, and it was not shown that any advantage could accrue to him from making them. No experts in handwriting were called to testify to the handwriting of these alterations, (page). Mr. Begg had been suspended by the Department once and reprimanded several times. He did not get along very well with Mr. Gunn. His attitude towards Wilson was improper and subversive of discipline.

The antagonism between Wilson and Begg is partly an expression of personal animosity and partly an expression of the general internal dissensions. The result is a state of affairs entirely prejudicial to the best interests of the Institution. The most satisfactory solution of these difficulties will be found in the reorganization of the hospital staff, which is recommended.

PUNISHMENT OR REFORM.

If the punishment of the offender is the only object society should have in view, the Penitentiaries of Canada fully meet the requirements. They are old-time prisons dominated by the idea that, not only should the offender be punished by being deprived of his liberty and confined by iron bars and stone walls, but that the avenging hand of the law he has violated should continue to bear heavily upon him in his place of incarceration. This policy is defended on the ground that the treatment of the prisoner in prison should be so ordered as to be a constant deterrent against his relapsing into crime, when he regains his liberty. It is a policy founded upon revenge, mistrust and fear.

Undeniably, the trend of prison administration the world over is away from the purely punitive and towards the reformative. It is realized that justice to society does not involve injustice to its moral delinquents; that while society must protect itself by imprisoning misdemeanants and felons, it is not necessary to inflict humiliation and torture upon them, while they are in prison. This policy recognizes that the prisoner has certain rights which it is the duty of society to respect. He is entitled to productive work under proper sanitary conditions, to a reasonable measure of education, if he requires it, to moral training and discipline; in fine, to every rational assistance towards his restoration to good relations with society. Viewed from the economic standpoint, the reformation of the convict is a matter of prime importance to the State. The prison of punishment is the most expensive prison to maintain. It keeps the inmates in idleness or employs them at work neither helpful to them nor profitable to the State.

The population of the six penitentiaries of the Dominion at the present time is about 2,000, and the maintenance of these institutions involves a net annual cost of $632,000. It should be possible, by the inauguration of a proper industrial system, to reduce very materially this heavy burden and ultimately make the prisons self-sustaining. But on higher grounds, it is surely the duty of society to adopt humanitarian methods within its prisons and give every possible encouragement to the man who is disposed to reform. The contrary attitude is out of harmony with the basic principles of Christianity and civilization. The church and its manifold agencies are bending all their energies to the reclamation of the moral offender who is enjoying his liberty. Why should the probably equally deserving delinquent, who has the misfortune to get into prison, be left to discover the light of the divine message to fallen man in his cropped hair and striped suit; through the solitude and darkness of his cell, in labour that demeans, discourages and brutalizes? Some justification may be found for the purely punitive system in the theory that the prisoner is a creature apart, differing from other human beings, not amenable to the same influences, hardened by kindness, discouraged and made restful by cruelty. That this theory is recognized in the present administration of our penitentiaries, there is reason to believe. The following is an extract from the evidence of Inspector Stewart: (pages):—

> "Q. Getting back to the congregate dining-room, one reason was the danger of mutiny, and the other was the objection the higher class convicts had to eating with the others?—A. Yes.
>
> "Q. Would the latter objection not be removable by a classification?—A. No, the classification would be making a distinguishing class, which would be looked upon with distrust and jealousy.
>
> "Q. No such thing as emulation among them, to follow in the footsteps of those who are rewarded for good conduct?—A. The emulation amongst convicts—nine-tenths of those who do behave do so because it pays them.
>
> "Q. Are they different from other men?—A. They are very different or they would not be here.

"Q. My dear sir, I disagree with you?—A. Well, the judge must be wrong.

"Q. It is idle to say that humanity is divided into two classes and that all the bad men are in prison and all the good fellows are out of it?—A. I do not believe that. There are a great many outside who ought to be in.

"Q. I say there are men here amenable to the same influences as if they were enjoying their liberty and appreciative of fair treatment?—A. I am afraid it is because you do not understand their character that you say that."

Further on (page) the question of occasional entertainments for the convicts was being discussed with Inspector Stewart. He was asked:—

"Q. What is the objection to the entertainment?—A. In the first place, it causes quarreling and jealousy as to who shall be the chief men and who shall be the performers.

"Q. I would not say entertainments given by themselves, but supposing you had some people in Kingston kind enough to come out and give some entertainments?—A. I think they would be more bored than they would appreciate it.

"Q. Life in this institution must have a mighty depressing effect on the human mind?—A. It may possibly. Generally they prefer their own company rather than being crowded together. If they are crowded together there is the trouble of their passing notes and complaining of irregularities.

"Q. To what do you ascribe the attitude of these men towards things the men outside enjoy?—A. The real criminal is usually the worst kind of egotist. He has a contempt for the clergyman who preaches, and the warden, and a contempt for anybody else's opinion but his own.

"Q. And your policy is designed and carried through with regard to the treatment of the real criminal and the real criminal only?—A. Yes.

"Q. And without reference to the fellow who is not a criminal and never will be?—A. That is his misfortune to be in here, but we have to adapt our rules and regulations to the possibilities of the worst criminals in here. We have to do it, because we cannot read human nature when a man comes through the gate and tell what class he is."

In the Deputy Warden's evidence (page) it is stated that only twenty-five per cent of the five hundred prisoners have reports against them; that many of the men reported are not punished but merely admonished; and many others subjected to trivial punishment. The number of serious offenders against the regulations, "difficult men to get on with", the Deputy Warden placed at thirty-five to forty, or about eight per cent. It will be urged that there are hardened criminals, who for their own comfort conform strictly to the regulations of the prison. No doubt there are cases of that character, but the general experience of prison administrators is that the hopelessly bad man cannot act the good man in prison, and that he who obeys the prison regulations can be made obey the regulations outside the prison. Again, it must not be concluded that a prisoner who has reports against him is devoid of the elements of good citizenship and impossible of reclamation. Where any departure from a monotonous daily round may be set down as an offence, it is certain that many good fellows must occasionally fall foul of the regulations. Allowing, then, the make-believe good to balance the well-disposed convict who now and then violates the rules, we are justified in assuming that at least seventy-five per cent of the population at Portsmouth offer some hope for reformation. That being the case, is it a wise policy to maintain for all a system designed, as Inspector Stewart puts it, solely for "the worst criminals."

ORIGIN OF PRISON REFORM.

The opinion obtains in some quarters that prison reform is a fad, promoted by well meaning but impracticable people, out of mistaken sympathy for the criminal class. Also, that it is a modern innovation originated and developed in the Republic to the South, and attended there with indifferent results. A cursory glance at the history of prison administration the world over, shows that the reformative system is very old and is the product of no particular people. Nearly every nation in western and southern Europe can lay claim to some contribution to the store of practical experience on the question. Howard, the Englishman, and Beccaria, the Italian, in the latter part of the eighteenth century, aroused public opinion to an appreciation of the cruelties of the penal system. About the same time, Vilain was giving a practical demonstration of the then new penology in the prison of Ghent. This prison, we are told, had for its avowed aim the reformation of those committed to it. It made labour the foundation of its system—not the crank or the treadmill, or picking oakum, or breaking stones, but purposeful, productive employment. Dr. F. H. Wines' description of what Vilain did in his prison at Ghent, nearly a century and a half ago, may be read with profit to-day:—

> "Vilain believed in industry as the primary agency for the reformation of the criminal character. He recognized and insisted upon the importance of trade instruction with a view to putting the prisoner in condition to earn an honest living, when discharged. He appreciated the importance, in the selection of prison industries, of choosing, as far as practicable, such as would come least into competition with free labour on the outside. He sought to find trades not followed in Flanders, but which, if adopted, might prove profitable to the Flemish people. In fact, there was a great diversity of avocations followed in the prison, among which may be mentioned: Carding, spinning, weaving, shoemaking, tailoring, carpenter-work, and the manufacture of wool and cotton cords. To encourage prisoners to work, he allowed them a percentage of their earnings, and the opportunity to do overwork. Part of their earnings was there own, to spend in the prison; part was retained, to be given to them at their discharge, so that they might not be penniless and on that account relapse into crime. Every prisoner had a cell to himself at night; the workshops were in common, and meals were served at a common table. He provided a resident physician and a resident chaplain. Proper attention was paid to the classification of prisoners. Felons were separated from misdemeanants and vagabonds, there was a distinct quarter for women, and he designed to make special provision for children also."

But the prison at Ghent was not permitted to continue its works. A "few interested parties" got the ear of the Emperor, and the industries were abandoned. Howard, who visited the institution in 1783, says: "I found great alterations for the worse; the flourishing and useful manufactory destroyed and the looms and utensils all sold. That which ought to be the leading view in all such houses is now lost in this house."

So we find that the problem with which we are attempting to deal is a very old and a very practical one. The principles underlying it have not changed with the years; nor have the influences which make for its success or failure. Its advocates are still heartened by the faith in their fellowmen that Vilain had, still hampered by the belief of many that all those behind prison bars are hopeless criminals. The successors of "the few interested parties" who got the ear of the Emperor and closed the industries at Ghent are still crying out that they are willing that convicts shall work, so long as they do not make anything.

CLASSIFICATION.

The segregation or classification of our penitentiary population is a problem of considerable difficulty. That population is made up of all classes and conditions of offenders—the first offender and the recidivist; the accidental and the hardened criminal; boys and old men; the physically rugged and the invalid; the highly intellectual and the imbecile. The present division of responsibility between the Federal and Provincial authorities for the custody of criminals is unscientific. The province looks after all those sentenced to a term less than two years. Those committed for two years or over pass into the control of the Federal Government. Hence we have at Kingston boys from sixteen to twenty-one, who are serving their first term in prison, under conditions that cannot possibly make for their betterment, while in the Provincial Reformatory at Guelph, there are men doing life imprisonment by installments. This feature of the situation was dealt with by a Special Committee of the Ontario Legislature in 1908. The conclusions arrived at by that committee apply with still greater force to-day. It says:—

> "The returns for last year show that seventy per cent of those committed to the Central Prison were first offenders, whilst fifty-seven per cent were under thirty years of age. The indiscriminate association of these first offenders and the hardened and dissolute type is a deplorable feature of our present system. To put it mildly, the State is not giving a fair chance to the erring boy when it herds him with those who have decided on pursuing a life of crime.
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> "At present time there are between thirty and forty young men, seventeen to twenty-two years of age, in the Kingston Penitentiary, from Ontario, who might be successfully dealt with in a modern reformatory. The officials of the penitentiary in their last report stated that the prospects for these youths being reformed were not more than one in a thousand.
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> "Instead of having the two-year sentence arbitrarily fixed as the boundary line between the Central Prison and the Penitentiary, it would be much better were the provincial institution devoted solely to first offenders, regardless of the length of the term for which they are committed."

It would appear to your Commissioners that a readjustment of the present arrangement on the basis suggested would not involve a serious shifting of the burden of maintenance as between the Provincial and Federal authorities. However that may be, there can scarcely be two opinions as to the wisdom of a classified prison system. England, France, Switzerland, and Germany long since abandoned the plan of herding all criminals, great and small, in one house. The Reformatory and the State Prison represent the practical working of the more scientific system in the Republic to the south. The reformatory population is confined: (1) to men under thirty years of age; and (2) to first offenders. To the State Prison go all the older and more hardened offenders.

The necessity of providing a separate prison for young offenders was recognized by the late Sir John Thompson, who, as Minister of Justice, purchased land and had plans partially prepared for a new reformatory at Alexandria. Why that project was not carried through, no explanation is forthcoming, but your Commissioners are of the opinion that it offered substantial improvement of a situation that has gone on through the years from bad to worse.

But granted that it is impossible to have segregation through separate prisons, it should be possible to have some measure of classification within each prison. It is solely with the object of classifying prisoners that separate prisons are advocated. It has been urged that to make any attempt at classification is to discriminate and discrimination is an evil that must at all cost be barred from our penitentiaries. Why

should the natural law of discrimination between the good and the bad not be operative in a prison? The scientific treatment of moral delinquents means differentiation and discrimination at every turn. Possibly some day there may be a prison in which each inmate will have his particular case analyzed by experts, with a view to special treatment, aiming at his readjustment to the proper standard of living. Such a development may seem visionary and impracticable. But surely we can, with reason and justice, move a little in advance of our present policy, which may be expressed in the words: "All is grist that comes to our punishment mill"—the old and the young, the bad and the well-disposed, the hopeless and the hopeful, all treated as so much human waste in a common heap.

There is discrimination under existing conditions. The stone pile at Kingston is, by long odds, the worst department in the institution, while the carpenter shop and blacksmith shop are probably the best. But there are some good conduct men on the stone pile, placed there, we are told, because there is no other work for them. Compared with their fellows in the carpenter shop and blacksmith shop, these men are being discriminated against; and there is no logical basis for the discrimination. If there were classification in the prison the operations of the stone pile might be confined exclusively to prisoners of the third or lowest grade. This classification would mean discrimination for cause—reward for good conduct, punishment for bad—instead of the present discrimination which sometimes assigns the decent fellow to the most brutalizing labour.

Admittedly there are obstacles in the way of scientific classification, in any of our penitentiaries. The buildings were not planned with that object in view. But even with conditions as they are, it should be possible to devise a simple grading that would be just to all and encouraging to the well disposed. In some prisons, much like our penitentiaries, the three grade system has worked well. A prisoner on arrival is placed in the second grade. On his conduct depends promotion to the first grade, his remaining in the second grade, or reduction to the third. First grade men get the best positions; third grade men are assigned to the most disagreeable labour. Remission is credited to first and second grade men only, and a prisoner must be in the first grade for a certain period before he is eligible for parole. Third grade men may earn promotion to second grade, and from second to first, by good conduct and industry. If the honour system is established, the trusties are selected solely from the first grade. On this basis a modified or elaborate system of classification may be established according to the character of the population and the success of the experiment. There may be weaknesses in such a system of classification, but its basic virtue is that it offers some encouragement to the prisoner who desires to conform to the regulations of the prison and fit himself for a decent life when his term of incarceration ends.

A true classification requires careful and scientific study of the individual. As things are, this can only be done in prison by obtaining a complete history of the prisoner. The study of the individual prisoner is also necessary to find out his aptitude for some particular trade and in the classification of prisoners regard should be had for their proper training for life outside.

A resolution was moved by the Hon. Mr. Monk in the Dominion Parliament in 1909, and unanimously carried. That resolution read as follows:—

> 'To ascertain.....what means could be adopted in Canada to insure a judicious classification and segregation of the convicts in our penal institutions and reformatories.'

In response to this resolution the wardens and chaplains of all the penitentiaries of the Dominion sent in reports which are to be found in the annual report of 1909-10, pages 280-330. These officials with one exception urged on the Government the necessity of classification of prisoners.

The inspectors who had called for these reports, in pursuance of Mr. Monk's resolution, made no recommendation to the Minister of Justice to take any action regarding

them. They dismissed the proposal to classify prisons and segregate first offenders in a separate prison or reformatory on the ground of expense, and they reported that the classification of prisoners should be left to the 'judicial criminologist.'

THE FIRST OFFENDER.

From sixteen to twenty-one the man is in the making. These years are peculiarly liable to criminal temptations, "the crucial years in the formation of the character."

The virile animal propensities are asserting themselves without the self-control, balance, and mature judgment of adult years. The adolescent period is recognized by psychologists as the most critical time of human life, and the State has no adequate means of dealing with it. When this youth falls into the hands of the law for some offence, he should be placed under proper treatment of a corrective kind, with such opportunities of education and industrial training as may enable him to become a useful citizen.

The thief, the murderer, the burglar, have their own fixed standards of life, which are those of their associates; to reform such persons, you must persuade them to drop their own standards and accept yours, a difficult thing to do.

In the case of the youth, his standards are not fixed and he is much more likely to be responsive to the right influence. To say that he cannot be reformed, is to despair of human nature. If he can be reformed, a grave responsibility rests somewhere.

Placing him in association with old criminals and offering no help to reform 'is sure to hasten his downfall.' For want of proper treatment 'large numbers of these young men develop into thugs, burglars, gamblers, etc.

It has come to be realized by penologists that to fulfil the obligations of society to this class of prisoners, personal, individual treatment is needful, the scientific study of the individual, otherwise you allow officials, well meaning but ignorant, to handle him as they please.

What to do about it is the problem. Chicago has its Juvenile Protection Society, for the purpose of grappling with this question. Dr. Healy spends his time studying defective boys and girls who have got into trouble in the Juvenile Court or otherwise, and finding out what treatment they require. It means the study of each individual case, but Dr. Healy truly says its costs less to take it up at that end than to take care of the same case when it has become a fully developed criminal. 'The public would find its reward in later years in a reduced crime rate.'

It may be that children and youth should not be sent to prison or dealt with under the forms of criminal procedure, but as delinquents, until their sense of moral responsibility has been fully developed.

> 'The absolute exclusion of young persons from the prisons, the Borstal system for dealing with juvenile adults, the elimination of weak-minded persons, are essential to a satisfactory reform of penal systems. They constitute a new sifting out process, whereby persons who have hitherto flocked to our prisons in thousands will in future be excluded and dealt with according to their needs.' (Dr. Quinton, late Governor of Holloway Prison.)

INDUSTRIES IN PRISON.

The character of a prison may be judged from its industries. If the industries are of the right kind and rightly managed, the tone and discipline of the institution are certain to be satisfactory. Busy shops, healthful, purposeful, profitable work, make abuses almost impossible. The prisoner who is engaged in interesting, improving work, is not hard to manage. He has not the time nor the inclination to conjure up "treasons, stratagems and spoils." Idle and dissolute he may have been when he enjoyed his

liberty, and now for the first time in his life, probably, he is made to appreciate the blessedness of labour. Increasing efficiency brings him fresh encouragement. He finds himself moving steadily towards a position of economic independence. When he goes out, he will face the world with a new heart, for his mind has become attuned to the habit of industry and he has discovered that he can do things and that in the doing of them there is satisfaction. If, in addition to all this, a wage allowance, based upon efficiency, be given the prisoner, every incentive is present to make him work faithfully, and pave the way for a new and a better start in the outside world.

The industrial conditions in the penitentiaries of Canada are a disgrace to the Dominion. An honest attempt is made by the officials to keep all the prisoners employed at something, but it is only an attempt. As far as your Commissioners could learn, there is not a single well-equipped, well-managed, continuously busy shop in the whole circle of prisons. The reason is not far to seek: There are no goods to make and if goods were made there is no place to market them. The blacksmith shop at Kingston was running nicely when the Commission made its visits. Steel gates for a new prison in the West were being turned out. When that order is completed the management will be hard put to find employment for the men in the blacksmith shop. The tailor shop, carpenter shop, painters and tinsmith's shops are operated merely to meet the requirements of the institution.

There is unanimity of opinion as to the necessity of labour in prisons. No one has had the cruelty to suggest that the prisoners should be sentenced to enforced idleness; that, deprived of his liberty for society's protection, the prisoner should also be deprived of the right to work. Not only should the prisoner be given work but all prison administrators agree that it should be purposeful, productive work—work calculated to make him a more efficient citizen when he regains his liberty.

The agitation against the competition of convict labour with free labour has been generally successful on this continent. That agitation was justified on both economic and moral grounds. The contract system of prison labour proved not only oppressively competitive in some of the states of the Union, but was the cause of abuses that barred the way to the betterment of convicts. But in removing this evil no thought seems to have been given in some instances to the possibly greater evil that might succeed it. To abolish the system of contract labour in prisons was justifiable; to leave unfortunate prisoners to hammer out their term on a stone pile, or become mental and physical wrecks in the solitary idleness of their cells, was a crime against humanity.

The possible solution of the labour difficulty in the penitentiaries naturally groups itself under two headings:—

(*a*) Outside work—General farming operations, clearing land, quarrying stone, making brick, building roads, etc.

(*b*) Inside work—Employment in the various departments for the proper upkeep and management of the prison. Employment in the making of goods for the State.

As far as the natural resources and facilities of the prison will permit, any or all of these activities may be profitably entered into. Outside employment has come to be regarded as a powerful reclamatory agency. Men who have lived their lives in narrowly circumscribed areas and have fallen into crime are likely to receive needed moral and physical stimulus from the open air and sunshine. Old mother nature is a kind nurse to the fellow who is at all disposed to get back to his better self. Hence, farming operations of any kind make ideal work for improvable prisoners. Quarrying stone and making brick, while not so attractive, as farm work, are healthful and interesting occupations. The Provincial Reformatory quarries at Guelph and the brickmaking plant of the same institution at Mimico have been remarkably successful from the productive standpoint. Better still, the men like the work and go from it to their regained freedom, rugged and hopeful.

Roadmaking has been urged as an ideal employment for prisoners, for two reasons: (1) because there is such a crying need for good roads, and (2) because work of that character affects very slightly the interests of organized labour. Of all outside work, roadmaking is the least desirable for prisoners. In the first place, the constant exposure to the public that such work inevitably involves is scarcely fair to the prisoner. Certainly it is not an aid to his rehabilitation. The convicts in the penal settlements of Botany Bay, Tasmania and Western Australia, working in chain gangs, built long stretches of stone roads that remain good to this day. But society's attitude towards its delinquents has surely become more humane since Port Arthur furnished Marcus Clarke with the material for his gruesome story. No prison management would now be allowed to march convicts out to work on the roads in chains. The physical difficulties to successful road operations are not easily surmountable. To work within nightly reach of the prison would mean a rather narrow area of operation. For a movable camp only well-conducted, trustworthy fellows could be selected, and these trusties could probably be employed more advantageously to themselves and the State on the institutional farm.

At Kingston, the farms should afford a means for the employment in summer of a great deal more of the surplus prison labour than it now uses. From twenty to twenty-four is the maximum number engaged on the farm, even in the busy season. It is idle to say that from fifty to one hundred men could not be profitably engaged on the land. There are market gardens all around the prison farm and all kinds of vegetables, with the exception of potatoes, can be grown in abundance. It might be even possible to treat the land as to make it produce a good yield of potatoes. The difficulty on the farm appears to be not in the land but in the prison management. More men are not at work on the farm because of the officials' fear of escape and the trouble of looking after the workers. At Ohio State reformatory, where they have many long term prisoners, even lifers, twelve hundred acres are being farmed and the net profit runs as high as $20,000 per year. In ten years, 2,600 prisoners have been trusted outside of the walls of the Ohio prison without armed guard, and only seventeen attempted to escape.

There is such a thing as emphasizing too much the necessity of keeping a loaded rifle within easy range of every prisoner. There are some men at Kingston to-day who would not run away if they had a chance. There are others who, under present conditions, would make an escape, if they saw a favourable opportunity. But repose a little confidence in these same men, put them on their honour, and they might prove faithful to their trust. The success of prison management should not be measured in inverse ratio to the number of yearly escapes. It is possible to have absolute security and a horrible prison. No escapes from the prison at the further end of the Bridge of Sighs are recorded, nor did many get away from the Bastile, until that memorable day in July.

The trusty system is essential to the success of outside operations. The continual menace of an armed guard stifles the development of co-operative interest in the convict, hampers him in his labour, and makes that labour costly to the State. Nor is it necessary to run great risks of escapes in developing the system. A trusty gang can be recruited from almost any prison. It must be very carefully selected at first: (1) From men whose terms of incarceration have nearly expired and whose self interest makes it unwise to run away; (2) From those whose antecedents and conduct give strong assurance that they will not violate the confidence reposed in them. Of course, there will be occasional escapes, but if from a wisely selected trusty gang one does get away, the safety of the community is not necessarily imperiled. The chances are the defaulter will be recaptured and his added punishment will impart the wholesome lesson to his fellows that it pays to play fair with the prison management.

Let us turn now to a consideration of the other branch of prison labour—Inside industries. On these, as we have already urged, depends in a large measure the success of prison management. Where outside operations are limited in scope and where the climatic conditions make it impossible to work men in the open for a considerable

period of the year, workshops within the walls are an absolute necessity. Given a free hand in the establishment and management of industries and the sale of their products, the progressive administrator can make an ideal prison. The greatest industrial prison on the continent is situated at Stillwater, Minnesota. A glance at the operations of that institution may be interesting. It has two basic industries: binder twine and agricultural implements. The prisoners are paid according to merit or efficiency, some of them receiving as high as $20 per month. In addition, a fund is set apart from the prison earnings to relieve special cases of distress in the homes of prisoners. Last year the net revenue—over and above the maintenance of the prison and the wages of the inmates—was $362,000. This sum was handed over to the State for the general service. Giving full credit to the unique genius of Mr. Henry Wolfer as a business man and a prison administrator, the result must still appear astounding unless the peculiar situation in Minnesota is explained. Within the borders of that state there are no binder twine factories or agricultural implement works, and it has become the settled policy of the State that the farmers purchase all their requirements in those lines from the Stillwater prison. If outside firms invade the Minnesota market the price of the prison product is lowered sufficiently to crowd them out. It is not necessary to make any comment upon the principle underlying the operation of Minnesota's penal industries. We merely state the facts. May we add that it is a far cry from the prosperous monopoly in two lines of manufacture that the Minnesota prison enjoys, to the strangled industrial conditions that one meets in a Canadian penitentiary—from the net revenue of $362,000 at Stillwater to a net cost of $300 per year for maintaining each convict in this Dominion.

THE STATE-USE SYSTEM.

The State-use system has been generally accepted as the most satisfactory solution of the prison labour system. True, objection is offered to it in some quarters because of the fact that under its operation, while the element of competition is removed, the product of prison labour displaces what free labour would otherwise supply. This objection is unreasonable. Its acceptance can only mean one thing: the enforced idleness of prisoners, which, as we have already pointed out, is a crime against the prisoner and society as well. Since prisoners must be given productive employment, surely it is only just that, in as much as they must be maintained by the State, the State should receive the product of their labour. In this view, the leaders of the labour movement on this continent heartily concur. Mr. John Mitchell, Vice-president of the American Federation of Labour, in a recent article says:—

> "Organized labour is the strongest and most persistent advocate of the employment of convicts in the prisons upon those commodities which are needed by the state and its subdivisions for consumption in its several institutions and departments. The charge that the labour unions are opposed to convict labour is a malicious attempt to prejudice the public against unionism by shifting upon the unions the responsibility for the evil conditions existing in the penal institutions"

Further on, Mr. Mitchell approvingly quotes an extract from the report of the proceedings of the National Committee on Prison Labour, as follows:—

> "After one year of study the National Committee on Prison Labour found the preponderance of evidence to be in favour of the State-use system; after a second year of study and further investigation, the Committee is in a position to declare as prejudicial to the welfare of the prisoner, the prisoner's family and the public, the contract system of prison labour. The Committee therefore declares itself opposed to the contract system of prison labour and to every other system which exploits his labour to the detriment of the prisoner."

In a contribution to the Annals of the American Academy, Mr. John P. Frey, editor of the *International Moulders' Journal*, defines the position of organized labour on the question in these words:—

> "It is not the work of the convicts as producers which meets with trade union opposition, nor is it that by working they may keep some free men idle. It is, instead, the methods by which prison labour, when performed for the benefit of private contractors, places the product of the convicts' labour on the market and thereby forces reductions in wages upon large numbers of free workmen, thereby lowering their standard of living."

Proceeding, Mr. Frey gives an illustration of the attitude of labour. If the State decide to "build an addition to one of its prisons or erect a new public building by convict labour" there could be no objection. But if the State "allowed building contractors the privileges of contracting for convict labour and these convicts were placed to work erecting buildings for private individuals in competition with contractors employing free labour—to this form of competition the trade unions object." Further on, Mr. Frey advocates the doing in prison of all work necessary for the maintenance of State and eleemosynary institutions, building highways, raising farm produce, etc., "and the convict can work on all of these with a minimum of competition with free labour and with no injury to the farmer." More emphatic still is the pronouncement of Mr. Collis Lovely, General Vice-president of the Boot and Shoe Workers' Union, Boston, in favour of the State-use system. He says:—

> "The system has proved an unqualified success and merits extension to all penal institutions in the state and country. No institution supported wholly or partially by the State should be allowed to purchase a single article in the open market that can be supplied in prisons. This would give employment to diversified prison industries and occupations and fit the prisoners to procure and perform lucrative labour at the expiration of their prison terms. Hence the value of diversified prison industries and occupations conducted under the most improved methods and with up-to-date machinery."

Your Commissioners had the privilege of hearing statements from representatives of organized labour in Canada. With the views already quoted from United States Labour leaders these statements generally agree. Mr. James Watt, president of the Toronto Trades and Labour Council, did not see any serious objection to prisoners being employed on work for the State, but urged strongly that the State should pay them wages. The president of the Dominion Trades and Labour Congress, Mr. J. C. Watters, said it did not matter what class of work prisoners are engaged in, there is competition to a greater or less degree. But the State-use system offers least competition to outside labour, and he was most emphatically in favour of it.

It is needless to quote the opinion of prison administrators on the State-use system. They all favour it. Wherever it has been adopted it has settled the perplexing question of productive employment in prisons. Let it be remembered, however, that the field for the operation of such a system in any of the States of the Union is much wider than it is in Canada. "State Institution" there covers nearly every institution within the borders of the State, educational, charitable, and corrective. In other respects, what with us is a strictly municipal service is with them under State control. Dr. E. Stagg Whitin, secretary of the New York Prison Board, told your Commissioners that the entire population of the penal institutions of the State could not possibly manufacture all the goods required for its various institutions. A similar situation is said to exist in Ohio, Massachusetts, and other states.

Wherever the State-use system has been successfully inaugurated it has been found necessary to pass an Act making it compulsory for the State's institutions and services to purchase their supplies from the penal institutions. If the purchase of

goods from prison industries is left optional, it is found that private interests exercise a sufficiently powerful influence to hold the trade or the major portion of it. There does not appear to be any doubt that a full application of the State-use system in Canada would mean a welcome revival of the industries of the penitentiaries. More, it would mean the development of industries admirably adapted to the needs of the prisoners. On this point, there is a hearty agreement among the penitentiary officials who have been before us. Ex-Warden Platt tells us on pages of the abandonment of the one-time thriving industries at Kingston; how the conditions that followed have "seriously operated against the reformation of the convicts;" the efforts that have been put forth to fill orders for supplies for the Post Office and Military services of the Government, and his own conviction that the public use plan would give the penitentiaries "all the work they would require." Equally confident is Inspector Douglas Stewart that the Government has within its own hands the means of reviving on a sound basis the penal industries. On page he says:—

Speaking about the better employment of prisoners in penitentiaries, Inspector William Hughes (page) declared that:—

> "What I have recommended, and what I think is absolutely suited, from every point of view, is that the Government should utilize the labour of its wards to meet its own requirements as far as possible. I think it (the State-use system) would give employment to every man in the prisons of Canada."
>
> "Those men (those on the stone pile), not only those men, but all the men in the institution that we cannot employ on the farm and works, which are necessary for ourselves and the maintenance of the place, should be employed on State work. We are at the present time prosecuting operations here that will enable us to obtain possession of two shops in addition to the binder twine shops. With these shops at our disposal the prosecution of some industry for the manufacture of State goods could be taken up immediately. Let the Government give us an idea of what they want done and we can make it for them immediately."

From what your Commissioners have seen and heard during their investigations, they are forced to the conclusion that the State has been grossly negligent in not providing proper work for its prisoners in the penitentiaries. Public opinion forced the abandonment of the contract system and the closing down of the shops operated under it; but public opinion did not bar the way to the employment of prisoners in work for the State. The lack of proper employment at Kingston has been the cause, we believe, of the institution's chief troubles.

Under the State-use system many lines of industry might be profitably entered into. One of the most suitable for the prisoners and the most profitable to the State would be a furniture factory, for the making of all kinds of office furniture, filing cabinets, desks, tables, chairs, etc. The efficiency that can be developed, even among short term prisoners, in this line of work is remarkable. In one reformatory in the United States, your Commissioners were shown a magnificent line of furniture for the Governor's residence, made entirely by the inmates.

Other industries will naturally suggest themselves: clothing, boots and shoes, blankets, tents, etc., for the Mounted Police; tents, blankets, uniforms and harness for the Militia; tinware utensils for all services requiring them; mail-bags and repairing same, rural mail boxes, etc., hospital beds and tables.

As the industries grow, it will be found that other lines of manufacture for the Government can be successfully carried out. The system should be given not a stinted but a generous application. Private interests have made it impossible for the Government to allow its prisoners to labour for the open market. Private interest should not be allowed to interfere with the Government setting apart for prison industries

every dollar's worth of those lines of goods that it requires and that prison shops can turn out.

That course marks the only sure way to the reform of the penitentiary system in Canada. Once a diversified circle of industries is established, abuses will disappear. A kindlier attitude and a better spirit will develop amongst the prisoners; officials and guards will realize more fully that their duty is to help as well as to hold the convict; and that to make men better is one of the prime purposes of the Prison System.

PAYMENT OF PRISONERS.

It has been strongly urged upon your Commissioners that prisoners should be paid wages or that a portion of their earnings be devoted to the maintenance of their families. At the present time, the prison population of Canada, far from earning anything for the State, costs the Government for maintenance over $300 per head per year. Even if a well-selected circle of State-use industries were established and successfully operated, it is not likely they will ever make our prisons self-sustaining. They should, however, very materially reduce the annual burden on the country and at the same time provide a fund for the remuneration of prisoners or assistance to prisoners' families.

Any wages' system must include all prisoners in its operations. If married men, or men with relatives dependent upon them, alone were paid, other prisoners, equally skilled and equally industrious, would justly complain. Even the fact that the earnings were given, not to the prisoner, but to his family, would not lessen the discrimination. The only prisoners who can fairly be left off the wages or reward sheet, are those under the ban for bad conduct.

The system of rewards or payments to prisoners, according to their efficiency and industry, has been adopted in many of the Institutions of the United States and in a few houses in Europe. As an incentive to labour and good conduct, it is invaluable. Men work with much more heart when they know they will be sharers, even to a small degree, in the product of their labour. In fact, their increased output under such a stimulus, it has been shown, goes a long way towards covering the wages fund. An idea of the outlay which the wages or reward system involves, may be gleaned from a survey of the pay sheet at Stillwater, Minn. Stillwater, as we have already seen, returned to the State, $362,000 profit on its industries last year. The money paid the prisoners at Stillwater is termed 'over-work allowance.' In the month of October, 1913, 24 hands working full time, 27 days, received an 'over-work allowance' of $282.57, or an average of $11.77. There was quite a disparity in the amounts received by the men. One bench hand got $22.89 for his month's work. The earnings of four others were between $15 and $20, and seven were under $10.

The payment of prisoners, under the industrial conditions that at present obtain in our penitentiaries, would be a question of charity rather than administration. The question is: Should the distress that exists in the homes of many of these men and the sufferings entailed upon their innocent families, be left as at present to the care of local charities, or should their relief be made an additional charge upon the penitentiary appropriation?

The family, as a rule, is not to blame for the offence of its bread-winner, yet wife and children, crushed under the disgrace of the crime, have physical privation added to their mental tortures. The prisoner must bear the burden of his crime, but he is not responsible for the fact that he does not earn anything in prison. He would, no doubt, welcome the opportunity to engage in profitable labour, especially if he knew that part of his earnings would be devoted to the sustenance of his dependent ones. But the State will not let him earn anything. He is a non-producer and society has to support him as well as his family. The Government is to blame for this condition of affairs, and we believe until it places its prison population in the way of engaging

in productive labour, it should set aside a fund for the relief of distress in prisoners' homes.

THE INDETERMINATE SENTENCE.

The indeterminate sentence is regarded by penologists as essential to the effective operation of any reformative system. It is at once a scientific and a common-sense proposal. It presupposes the necessity of the cure or reclamation of the man as well as his punishment. The definite sentence, on the other hand, is punitive in its purpose. The prisoner must remain in prison for a stated number of years, no matter how well fitted he may be, before the expiry of his sentence, to take his place in the outside world. And he must be discharged when his time is up even if he is still an unrepentant criminal and determined to resume his war upon society.

The chief objections to the indeterminate sentence are: (1) the judge who tries a man is in the best position to fix justly his sentence; (2) the trained criminal may so conduct himself in prison as to deceive the officials and thus earn good reports and early liberty.

To the first of these objections there is only one answer: If the sole object of the judge's sentence is to punish, and make the punishment fit the crime, the judge is certainly the best qualified to measure out the law's revenge. But, if the other side of the question is to receive consideration; if society desires to reform as well as punish the convicted felon, then the judge is no more in a position to fix definitely the period of incarceration than the doctor is to say beforehand how long a patient should remain under treatment.

The second objection, based upon the fear that clever, designing criminals, by good conduct, may work a short course through prison, has not revealed itself in the practical operations of the system. Under the indeterminate sentence law, the average term of detention in prison is invariably longer than it was under the fixed sentence.

After years of experience with the operations of the system in the Commonwealth of Massachusetts, Mr. Fred. G. Pettigrove, of Boston, gives this as his matured opinion:

> "The indeterminate form of sentence is an indispensable adjunct to every reformatory scheme, because it is the only one that affords an opportunity to adjust the term of detention to the varying needs and capacities of the prisoner. When a prisoner is under the necessity of making a constant effort at self-improvement in order to secure release, he must in some cases be deriving a benefit from the discipline. The deterrent effect of penalties depends upon certainty more than upon severity; and the certainty of a commitment on an indeterminate sentence is quite as useful as if the court should fix the term."

The view that in corresponding to the efforts for his rehabilitation within the prison, even if his sole object is early freedom, a prisoner is developing the good that is in him, is also well expressed by another experienced penologist:—

> "The prisoner's government resolves itself into a mutual or co-operative relation between himself and keeper or guard. Both are anxious to win—the prisoner for his earlier freedom—his keeper because it is easier to manage him under the stimulating influence or reward. The general character of the prisoner is improved by his own discipline of self control, and I say it advisedly, the prison officer is also improved by the response in his ward. The rigours of prison commands are softened, infractions are adjusted with better spirit and penalties are imposed more thoughtfully. They feel the heart beats of each other more easily and readily, and I firmly believe that by this form of sentence we are more likely to recognize that which is too often unrecognized, that whether we wear official robe or prison garb, both are children of one living God."

The late Chief Justice McMahon was a strong advocate of the indefinite sentence. As indicating the position of an eminent Canadian Jurist on the question, a quarter of

a century ago, we may quote from Justice McMahon's charge to the Grand Jury at Toronto Assizes in June, 1889:—

> "Were the law changed and the judge's duty made simply to commit the prisoner to a named prison, the prisoner's duration therein would depend on himself, from the evidence afforded by his daily life and conduct as evincing his fitness for a return to liberty.
>
> "A convict is imprisoned because it is not safe for the community that he should be at large. His imprisonment is demanded for the same reasons that require that a lunatic should be detained in an asylum. It follows that the imprisonment should continue as long as the danger lasts. A lunatic is not discharged from an asylum until in the opinion of those intrusted with his keeping he has recovered his mental balance. So it is urged to discharge a convict while he remains unchanged in character and purpose is to precipitate upon the public a terror which it is the duty of the state to hold in leash.
>
> "As it is the aim of the indeterminate sentence to retain the convict in prison until he is fitted for freedom, making such fitness the condition precedent to his release, the sentence therefore presupposes a system of prison discipline that shall tend to fit the convict for freedom. Mere imprisonment does not have such effect; on the contrary the punitive system has the opposite tendency."

Dr. Bruce Smith, Inspector of Prisons for Ontario, has made an exhaustive study of the indeterminate sentence as an essential feature of any system of prison reform. Doctor Smith speaks not only from many years practical experience, but also from a wide knowledge gained through a personal investigation and study of the prison systems of the United States and European countries. He puts the case very concisely when he says:—

> "The indeterminate sentence embodies as one of its basic principles that the individual offender, and not the crime, shall finally determine the length of confinement or detention that is necessary to reform him, and to secure the greatest protection to society. This means a careful analysis of his physical, mental and moral status in order to determine how long it is necessary for him to remain in prison, rather than the measuring out so much punishment for a given amount of crime. The indeterminate sentence seeks to regenerate the criminal and readjust him to the requirements of society's laws and customs, so that he may be safely released on probation. It affirms that the crime shall not be considered except for the purpose of determining the culprit's natural depravity. Emphasis is placed upon the saving qualities of the individual—the man, or what is left of him. The scientific application of the principles of the indeterminate sentence means or implies that the offender shall some day be released on probation or parole, and that such tentative release shall come to him gradually, and only after he has given reasonable evidence of his desire and purpose to live honestly and obey the law. It means that his treatment in prison shall tend to break down and eradicate the vicious and criminal traits of his character and build up and strengthen the best elements of his nature. The principles involved in the indeterminate sentence and the probation or parole system are one and the same, and are inseparable."

Carried to its logical development, the indeterminate sentence should have neither minimum or maximum limits. It should mean liberty for the reformed prisoner to take his place in society and bear his share of its burdens, but it also should secure the continued incarceration of the incurable criminal. Any system that shortens the term of imprisonment of the man who becomes an honest contributor to the wealth of the community, and holds in leash for a longer period the habitual criminal, is in the economic interest of the State. Society is the gainer by the earlier freedom of the one and the longer confinement of the other. This principle is recognized in the

Borstal system in England where a separate institution has been established for cases that offer little or no hope of reform. New South Wales has a law that places a criminal, three times convicted, on what is known as the "habitual list." The habitual is kept in custody until he has given substantial evidence of a desire to live an honest and orderly life. Then he is allowed out on probation on condition that he report regularly to the probation officer and if he again violates the law he is returned to prison for an indefinite period. Switzerland has a special institution for the recidivist called the House of Seclusion. The minimum term is ten years; the maximum twenty.

The indeterminate sentence is now in operation in the province of Ontario. The Ontario Reformatory Act provides that every person sentenced directly to the Reformatory shall be sentenced to imprisonment there for a period of not less than three months and for an indeterminate period thereafter of not more than two years, less one day. An application of the same principle to the treatment of inebriates is to be found in the Ontario Municipal Act, 1912, a section of which reads as follows:—

> "Where a person is convicted of being found drunk or disorderly in a public place, contrary to a municipal by-law, within three months after a prior conviction for a like offence, he may be committed by the Police Magistrate or Justice of the Peace, before whom he is convicted, to an Industrial Farm, of the locality, in which the order for committal is made for an indeterminate period, not exceeding two years."

Not the least of the merits of the indeterminate sentence is that it would place all prisoners on an equal footing. The disparity in judges' sentences is very pronounced. One judge appears to have a particular aversion for a certain class of offence. Another judge is notoriously lenient in some cases. Hence we have men meeting in prison, found guilty of a similar offence, with one undergoing a penalty much more severe than the other. The long termer, already smarting under a feeling of resentfulness, is likely to grow more morose and vindictive when he meets other prisoners who are getting off much lighter than he. If a minimum and maximum period of imprisonment were fixed in each case and each convict allowed to work out his own salvation between those limits, there would be an end to all feeling of judicial wrong and a friendlier attitude by the prisoner, from the beginning, towards the agencies that are working for his rehabilitation.

PAROLE.

A natural corrollary of the indeterminate sentence is a properly organized and efficiently administered system of parole. To one officer is assigned the duty with the assistance of the police of looking after the men during their probation. The physical impossibility of any one man—no matter how efficient and zealous he may be—discharging these duties for the whole Dominion, is obvious. True, invaluable service is voluntarily rendered the Department by the Prison Gate Branch of the Salvation Army, and many a paroled prisoner owes his thanks to this worthy organization, for the assistance and encouragement that gave him a new start in life. If the administration of a parole system is one of the duties of the State, then the proper working out of that system should not be dependent upon the efforts of any church or charitable society. It should be organized and officered to promote and protect adequately the interests of every paroled convict. That would still leave a large field for the independent exercise of Christian sympathy and helpfulness.

According to the present regulations, the paroled men report to a police officer in the district. This is a very bad feature of the system. The average policeman is neither temperamentally nor by training fitted to be the guide and guardian of an ex-convict. Not infrequently, police persecution has driven the honestly working convict away from his employment and back again to a life of crime. The parole system should

be absolutely independent of the police. It should be administered by strict but sympathetic men, who will see to it that the paroled convict gets a fair chance. Employment is the first requisite to a new start in life. It is not fair to the prisoner to set him at liberty in a world which has been a closed book to him for a number of years, without anything to do. If the man is weak at all, he will surely go down under the continuous pressure of enforced idleness. It is not desirable in the vast majority of cases to send the man back to his former home. The prospects of his success are generally much better if a position is secured for him in a strange place. Only his employer and the local parole officer need know of his prison experience. This secret between employer and employee often develops a feeling of fellowship and gives the paroled man a surer grip of himself.

Your Commissioners have been impressed with the idea that a parole system can best be administered with the assistance of a small board appointed at each institution. That board could meet monthly and consider the application for parole, see and interrogate the applicants, hear the reports from the warden and other officials, and advise the Minister of Justice on each case. Membership on the board would be of a purely honorary character, as public spirited men may be found at every prison willing to give their time to the work.

MANAGEMENT OF PENITENTIARIES.

The unsatisfactory conditions at Kingston Penitentiary are the outcome of the system of administration. The place is pervaded by a spirit of distrust and suspicion amongst the subordinate officers. Political jealousies and religious animosities prevail to such an extent that they have seriously affected the welfare of the inmates. It is difficult to see how any reformatory work can be carried on where such a spirit prevails. When officers are quarreling, nursing personal grievances and imaginary wrongs, and making them the subject of prison gossip from day to day, their influence on the prisoners cannot be good.

Many of the guards are not qualified by education or character for the positions they fill. Guards who obtain their appointments by misrepresenting their age and other sinister means, are not men whose influence will tend to uplift those in their charge. When they carry on illicit traffic in tobacco and rob the convicts in doing so, they cannot help to make the prisoners honest men. Their influence must have an evil effect which nothing can overcome. The possible effects of the petty tyranny over prisoners of ignorant and brutal guards are painful to think of. The moral standards pervading the prison are to be estimated from these facts.

These conditions result in great measure from: (1) The present mode of appointing guards through political influence; and (2) from the Warden's hands being tied, so that he is practically impotent to control or dismiss an official who has political influence, no matter what his offence may be. Formerly, it appears the Warden was invested with full authority to employ and dismiss guards. Some fifteen years ago, this power was taken from him, and the result has been the lessening of his influence as an administrator; the employment of men utterly unsuitable for the work, and the consequent demoralization of the penitentiary service. As to the conditions we are dealing with and the causes that produce them, there is a concurrence of opinion among prison officials. Warden Platt was questioned on this point (page):—

> "Q. How does the present system affect discipline in so far as the authority of the warden is concerned?—A. Inimically; that is the whole tendency—to lessen the authority of the warden and lead the officials to think that the warden has less to do with them than he used to have—and that they are dependent on their friends in the city or friends in Ottawa more than they are on the warden.
>
> "Q. That must undermine discipline?—A. It undermines the authority of the warden."

Inspector Hughes (page) condemned the system of placing a man who is inferior in every way to the convict who is under him, in charge of that convict. Where you get men shut in from the outer world and the only person from the outer world they are meeting is the man who instructs and controls them practically, body and soul, that man's example before them is much more than you can appreciate, unless you have been there to see it.

Equally emphatic was Inspector Stewart in his denunciation of the method of appointing guards. Speaking of a convict who had been using dope, he was asked, (page): "Where would he get the dope?" and the answer was: "From officers appointed by political parties outside, without an examination." Further on, (page) Mr. Stewart deals more fully with the question. He says:—

> "The mode of selection is such that the Warden is absolutely relieved of the responsibility or the influence a man so selected has over the convicts. The process of selection is and has been for the last fifteen or twenty years, fifteen years at least, that when a vacancy occurs a man is taken from those recommended by prominent politicians and members of Parliament, and the Warden is notified to employ him. The Warden, it is true, has then three months before the appointment is made permanent, if he sees fit to report against that man's permanent appointment, but it is very, very rarely that the Warden has backbone enough to do it, because he antagonizes the politician who recommends him."

Your Commissioners believe that no lasting improvement in the condition of our penitentiaries can be looked for, so long as the present system of management is adhered to. It is impossible, apparently, to fix the responsibility for many of the evils complained of. The Warden disclaims responsibility and the Inspectors say that they are not responsible, in many cases. What is needed is a management, unhampered by political influence, vested with full power to reorganize the system and held strictly responsible for the conduct of all our penitentiaries. The importance of the work can scarcely be overestimated. At the very outset a line of industries must be established. To place each of these industries in the most suitable institution and fully equip and officer them are important undertakings. More important still is the better adjustment of the routine and discipline of the prisons to the moral and intellectual improvement of the prisoners. Responsibility there must be and in the final analysis that responsibility must rest on the Department and the Government. But in the working out of a reorganization and the subsequent management of each prison those charged with the duty should be given a free hand. To no other department of the public service is the Commission system so well adapted. Wherever it has been tried the results have been gratifying. A penitentiary Commission of three members would meet every requirement of the situation. To that Commission should be given full power to reorganize the prisons, industrially and otherwise, make regulations for their management, select men for the administrative officers and then hold these men responsible for results. As a body, the Commission would control the whole circle of penitentiaries. Individually, they would perform the duties of an inspectorate. The Department of Justice, while exercising supreme authority over the Commission, would be relieved of the details of management and the pressure for political appointments.

RECOMMENDATIONS.

Your Commissioners beg to make the following recommendations:—

Management.

(1) That the control of the penitentiaries be placed in the hands of a permanent Commission of three members, with power to appoint staff officers and heads of depart-

ments, make regulations for the government of the institutions and generally direct their management.

(2) That under such commission the Warden of each prison be given full authority to employ and dismiss keepers, guards, etc., in addition to the powers he now enjoys.

(3) That a Parole Board of not less than three members be appointed for each penitentiary, to sit once a month and to hear and consider applications for parole, and make recommendations on the same to the Minister of Justice.

(4) That the field staff of the parole organization be increased to three officers to be directly under the charge of the Department of Justice and work in conjunction with the local parole boards.

Classification.

(5) That an arrangement be entered into with the provinces of the Dominion to take over the custody of first offenders and prisoners under twenty-five years of age.

(6) That should it be found impracticable to carry out recommendation No. 5, two reformatories for young prisoners and first offenders be established—one in the East and the other in the West.

(7) That within the present penitentiaries a system of classification be inaugurated, based upon the conduct of the prisoners, and operated with a view to encourage them to habits of order, industry, and a better appreciation of the duties of citizenship.

Industrial Employment.

(8) That what is known as the State-use or Public-use system of prison labour be adopted throughout the penitentiaries and that industries be established to supply the requirements of the Government, its institutions and services, with all goods that can be made in prison.

(9) That outside labour be developed to the fullest possible extent at each prison, in farming operations and, where raw material can be conveniently obtained, in quarrying stone, making brick, etc.

Treatment of Prisoners.

(10) That a through physical and mental examination be made of each prisoner on his admission, and as far as possible his antecedents and family history be obtained and put on record; and

That a proper fyling system be installed at each penitentiary, so that the history, physical and mental condition of the prisoner on admission and his record in prison may be kept in one envelope.

(11) That the close cropping of prisoners' hair be abolished, except in cases where it is necessary to preserve cleanliness.

(12) That in place of the present prison uniform a suit and cap of one tone material, blue or grey, be adopted.

(13) That a few copies of a carefully censored weekly newspaper be provided in each prison for the use of good-conduct prisoners.

(14) That a moderate issue of tobacco be made to good conduct prisoners who had contracted the habit before entering prison.

(15) That as soon as space can be provided a dining-room equipped with proper service be established at each prison for all good conduct prisoners, and that meanwhile the tinware utensils in use be discarded and enamel-ware subtituted.

(16) That hosing of convicts and confining them in a dark cell or dungeon and shackling with ball and chain be abolished.

The Hospital and Insane Ward.

(17) That a hospital, modern in plan and equipment, be provided.

(18) That the hospital staff be reorganized so that it comprise a visiting surgeon, a resident physician, and two trained male nurses.

(19) That a separate institution for the criminal insane be established or that arrangements be made with the provincial Governments for taking over this class.

The School.

(20) That a school of letters be established at each prison, and for three hours at least each day instruction be given by a head teacher and inmate monitors.

(21) That drill exercises be held every Saturday afternoon when the weather is suitable, and on the afternoon of every holiday; and that an occasional entertainment be given.

Disciplinary Officers.

(22) That in the employment of guards more regard be had to the character and education of the applicant, with a view that the official should exercise the best possible influence over the prisoner.

Indeterminate Sentence.

(23) That the criminal code be so amended as to empower judges to impose a maximum and minimum term of sentence on all persons committed to a penitentiary, the period of detention to be fixed by the Parole Board.

G. M. MACDONNELL.
FREDERICK ETHERINGTON.
J. P. DOWNEY.

DOCUMENTS

RELATIVE TO THE

GOVERNMENT GUARANTEE

OF THE

BONDS OF THE CANADIAN NORTHERN RAILWAY

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY J. DE L. TACHÉ, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1914

No. 269b, i, j, l, m—1914]

Canadian Northern Railway System.

1.—Correspondence, including official application.

2.—Detailed statements showing particulars of capitalization, earnings, cost to complete, &c.

OTTAWA, March 5th, 1914.

To the Right Honourable
R. L. BORDEN,
Premier of Canada.

DEAR SIR,—For the reasons mentioned in the memoranda and statements respecting the Canadian Northern Railway System, submitted, it is essential that the Company should receive further Government aid. The amount required is Forty-two Million Dollars ($42,000,000).

Recognizing the difficulties in the way of a cash loan, I beg to apply for a guarantee of securities to the extent of Forty-five Million Dollars ($45,000,000), par value. The discount on the disposal of these securities would probably reduce the proceeds below the Forty-two Million Dollars ($42,000,000).

I have the honour to be,

Your obedient servant,

WM. MACKENZIE,
President.

OTTAWA, March 6th, 1914.

To the Right Honourable R. L. BORDEN,
Premier of Canada,
Ottawa, Ont.

DEAR SIR,—It has been suggested that an agreement should be made between the Canadian Northern Railway and the Government in connection with the Company's application for assistance, providing for an exchange of traffic between the Company's lines of railway and the Intercolonial Railway at Quebec. To an arrangement of this kind, the Company is agreeable, and it is suggested that the arrangement should be of such nature that the Intercolonial would secure all the benefits, from traffic originating on the Company's lines and consigned to points on the Intercolonial Railway, that it would have were it the eastern part of the Canadian Northern Railway System. Naturally, the Canadian Northern would expect the same benefits from traffic originating on the lines of the Intercolonial Railway.

I am convinced that an arrrangement of this kind is practical and would result in benefit to the two railway systems affected, and if the members of your Government are of the same opinion, I would suggest that provision be made in such legislation as may be passed in connection with the Company's application for aid, empowering the interested parties to enter into the necessary agreements.

Yours very truly,

WM. MACKENZIE,
President.

INFORMATION REQUIRED FROM THE CANADIAN NORTHERN RAILWAY.

REQUIRED—A TABULAR STATEMENT SHOWING:

1. The Charters of the various Companies constituting the C. N. R. System, with dates and appropriate references.
2. The length of each line and the Provinces within which it is situate and its termini.
3. Its present or proposed connection with the whole system.
4. Its capitalization showing both authorized and issued capital.
5. Its cost up to the present time.
6. The amount, if any, required to complete.
7. The aid received therefor in (*a*) cash, or (*b*) lands, from (*a*) the Federal Government, (*b*) any Provincial Government or Governments, and (*c*) any municipality.
8. The aid received therefor in guarantee of securities by (*a*) the Federal Government, or (*b*) any Provincial Government.
9. The fixed charges thereon with particulars of the date when (*a*) the principal and (*b*) the interest is due.
10. The present earnings both (*a*) gross and (*b*) net.
11. The estimated earnings both (*a*) gross and (*b*) net, during the years 1914-15-16-17-18 respectively.

CANADIAN NORTHERN RAILWAY SYSTEM.

LENGTH OF EACH LINE AND THE PROVINCES WITHIN WHICH IT IS SITUATE, AND ITS TERMINI.

	In operation.	Track laid not in operation.	Grade completed. No track laid.	Grade not complete but under contract.
Canadian Northern Railway..... Lines in Provinces of Alberta, Saskatchewan, Manitoba and Ontario. Termini—Edmonton & Port Arthur.	4931·98	164·33	250·85	
Canadian Northern Alberta Ry..... Lines in Province of Alberta. Termini—Edmonton and Yellowhead Pass.	22·00	229·18		
Canadian Northern Western Ry..... Lines in Province of Alberta. Termini—Various Branch Lines.	.....	188·80	154·62	
Canadian Northern Saskatchewan Ry..... Lines in Province of Saskatchewan. Termini—Various Branch Lines.	.....	.....	32·72	
Canadian Northern Pacific Ry..... Lines in Province of British Columbia. Termini—Vancouver, Yellowhead Pass. Vancouver Island—Victoria and Alberni.	.....	260·05	264·33	162·35
Duluth, Winnipeg & Pacific Ry..... Lines in State of Minnesota. Termini—Duluth and Fort Francis.	171·6	.....	.....	
Canadian Northern Ontario Ry..... Lines in Provinces of Ontario and Quebec. Termini—Port Arthur, Montreal, Toronto.	698·8	699·9	128·00	58·25
Canadian Northern Quebec Ry..... Lines in Province of Quebec. Termini—Quebec, Montreal, Hawkesbury.	362·23	.....	.....	
Quebec & Lake St. John Ry..... Lines in Province of Quebec. Termini—Quebec and Roberval.	285·4	.....	.....	
Halifax & South W. Ry..... Province of Nova Scotia. Termini—Halifax and Yarmouth.	370·5	.....	.....	
Central Ontario Railway..... Lines in Province of Ontario. Termini—Picton and Rathburn.	155·4	.....	.....	
Bay of Quite Railway..... Lines in Province of Ontario. Termini—Bannockburn and Deseronto.	55·0	.....	.....	
Irondale, Bancroft & Ottawa Ry..... Lines in Province of Ontario. Termini—Bancroft Jct., Kinmount Jct.	54·7	.....	.....	
Marmora Railway & Mining Co..... Lines in Province of Ontario. Termini—Marmora, Wariston.	9·6	.....	.....	
Brockville, Westport & N. W. Ry..... Lines in Province of Ontario. Termini—Brockville, Westport.	44·3	.....	.....	
Niagara, St. Catharines & Toronto Ry..... Lines in Province of Ontario. Termini—Niagara Falls, Pt. Colborne, Pt. Dalhousie.	75·00	.....	.....	
	7,236·51	1,542·26	850·52	230·8

CANADIAN NORTHERN RAILWAY SYSTEM.

Requirements to Complete.

1.	Canadian Northern Pacific Ry. British Columbia Section	$ 23,647,492	
2.	Canadian Northern Railway. Main line and branches already under construction	15,042,896	
3.	Canadian Northern Ontario Ry. Montreal-Port Arthur and Toronto-Ottawa	18,251,891	
4.	Canadian Northern Tunnel & Terminal Co. Montreal Terminals	5,995,734	
5.	Rolling Stock. Equipment for Transcontinental and maturing Equipment Notes	27,441,086	
6.	Betterments. Ballasting, Permanent Improvements including heavy rails on balance Main line	10,000,000	
			$ 100,379,099
	Proceeds of Securities which will be Issued in respect to above expenditures and Cash in Trust accounts, for construction.		
	Canadian Northern Pacific Ry. C.N.P. Ry. 4½% Deb. Stock and Subsidy	$ 6,704,097	
	New Securities	4,854,500	
	Canadian Northern Railway. Proceeds of Securities in hand and to be earned against above	7,634,497	
	Canadian Northern Ontario Railway. Proceeds of Securities in hand and subsidy to be earned	16,788,822	
	Canadian Northern Tunnel & Terminal Co. Proceeds of Terminal Securities	5,995,734	
	Rolling Stock. 4½% Equipment Bonds	16,496,332	58,473,982
	Balance to be provided		$ 41,905,117

Certified correct:

A. J. Mitchell, D. B. Hanna.

CANADIAN NORTHERN RAILWAY SYSTEM.

AID RECEIVED FROM DOMINION AND PROVINCIAL GOVERNMENTS (a) CASH—(b) LANDS.

(a) CASH—DOMINION GOVERNMENT.

Canadian Northern Railway		$ 2,000,332
Swan River Section	$ 374,606	
O. & R. R. Ry.	1,534,526	
E. Y. & P. Ry.	91,200	
Canadian Northern Alberta Ry.		2,832,024
Canadian Northern Ontario Ry.		10,124,470
Hutton Branch	176,832	
Toronto-Sudbury	1,696,128	
Toronto-Ottawa	1,363,122	
Hawkesbury-Ottawa	369,872	
Ottawa-Port Arthur	6,518,516	
Canadian Northern Quebec Ry.		707,568
Garneau-Quebec	523,820	
St. Jerome Branch	97,280	
Rawdon Branch	86,468	
Canadian Northern Pacific Ry.		
Vancouver-Yellowhead		4,349,930
Halifax & South Western Ry.		1,364,210
		$ 21,378,534

(b) LANDS—DOMINION GOVERNMENT.

No land was granted direct to Canadian Northern Railway, but this Company has received fron the Contractors who constructed the Lake Manitoba Railway & Canal Company, the Winnipeg & Hudson's Bay Railway and the Manitoba & South Eastern Railway, 4,002,848 acres.

AID RECEIVED FROM DOMINION AND PROVINCIAL GOVERNMENTS: (a) CASH, (b) LANDS.

(a) CASH—PROVINCIAL GOVERNMENTS.

Canadian Northern Railway:	
O. & R.R. Ry.	$1,072,800
Halifax & South Western Ry.	2,804,450

CANADIAN NORTHERN RAILWAY SYSTEM—*Continued.*

(b) LANDS—PROVINCIAL GOVERNMENTS.

Canadian Northern Ontario Ry.
The Government of Ontario granted—Sudbury–Port Arthur 4,000 acres per mile for 500 miles.

Note.—These lands have not yet been selected, and no money has been raised on them.

Canadian Northern Quebec Ry.
The Government of Quebec granted:

	Mileage.	
Garneau and Quebec	77.4	360,760 acres.
Limoilou	7.62	
Main line to Bridge	5.16	
St. Jerome Branch	15.2	
St. Jacques to Rawdon	15.96	
Montreal—Grenville	65.00	

Note:—These lands have not yet been selected, and no money has been raised on them.

Quebec & Lake St. John Ry.
The Government of Quebec granted:

Valcartier	3.8	24,900 acres.
Gosford	4.5	

AID RECEIVED FROM DOMINION AND PROVINCIAL GOVERNMENTS.
(a) — CASH — MUNICIPALITY.

Canadian Northern Railway:		
City of Port Arthur	$ 50,000	
Canadian Northern Ontario Ry:		
James Bay Railway—Town of Parry Sound	20,000	

AID RECEIVED BY GUARANTEE OF SECURITIES.

(a)—FEDERAL GOVERNMENT.

Canadian Northern Railway:		$ 17,256,584
Main line, (3%)	$ 9,359,996	
Prince Albert Branch (3%), Branch lines (3½%)	7,896,588	
Canadian Northern Ontario Railway		$ 34,066,666
Montreal–Port Arthur (3½%). Total guaranteed	$ 35,770,000	

CANADIAN NORTHERN RAILWAY SYSTEM—*Continued.*

Canadian Northern Alberta Railway		$ 6,719,998
Edmonton—Yellowhead (3½%)		
1st Section	$ 3,149,998	
2nd Section	3,570,000	
		$58,043,248

NOTE.—Issue of Canadian Northern Alberta Ry. =3,570,000 not yet sold.

(b) PROVINCIAL GOVERNMENTS.

Canadian Northern Railway:	
Alberta Government,—	
Branch Lines in Alberta	$ 6,560,000
Saskatchewan Government,—	
Branch lines in Saskatchewan	8,030,000
Manitoba Government,—	
Branch lines in Manitoba	23,849,630
Canadian Northern Ontario Railway:	
Ontario Government	7,860,000
Canadian Northern Pacific Railway:	
British Columbia Government—	
Main lines and branches Terminals	24,126,573
Canadian Northern Western Railway:	
Alberta Government,—	
Branch lines in Alberta	6,424,000
	$76,850,203

NOTE.—The figure above represent securities issued and sold.

CANADIAN NORTHERN RAILWAY SYSTEM.

SUMMARY OF FIXED CHARGES FOR THE YEAR.

	Amount Outstanding.	Annual Interest.
	$ cts.	$ cts.
Canadian Northern Railway	165,483,693 57	7,096,651 14
Equipment Securities	23,746,000 00	1,034,316 25
Affiliated Companies	116,995,665 02	4,544,041 55
Leased Lines—		
Minnesota and Manitoba Railway		13,960 00
Northern Pacific Rental		225,000 00
Qu'Appelle, Long Lake and Saskatchewan Railway	5,051,463 73	202,056 02
	311,276,822 32	13,116,024 96
LESS—		
Interest on income Charge Convertible Bonds		1,250,000 00
		11,866,024 96

CANADIAN NORTHERN RAILWAY SYSTEM—*Continued.*

STATEMENT of Gross Earnings, Operating Expenses and Net Earnings of all lines embraced under the general title of Canadian Northern Railway System, for the fiscal year ended 30th June, 1913.

	Gross Earnings.	Operating Expenses.	Net Earnings.
	$	$	$
Canadian Northern Railway	24,527,478	17,503,610	7,023,868
Canadian Northern Ontario Ry	1,280,524	1,230,213	50,311
Canadian Northern Quebec Ry	1,599,546	1,313,585	285,961
Quebec & Lake St. John Ry	959,380	823,847	135,533
Central Ontario Ry	375,048	243,024	132,024
Bay of Quinte Ry	257,271	221,051	36,220
Irondale, Bancroft & Ottawa Ry	30,384	23,967	6,417
Niagara, St. Catharines & Toronto Ry	475,360	326,905	148,455
Halifax & South Western Ry	531,338	528,217	3,121
Brockville, Westport & N. W. Ry	76,447	51,149	25,298
Duluth, Winnipeg & Pacific Ry. (es.)	1,700,000	1,086,110	613,890
	31,812,776	23,351,678	8,461,098
Deduct fixed charges on Outstanding Securities			6,950,380
Surplus			1,510,718

NOTE.—Surplus available to pay interest on 5% Income Charge Convertible Stock amounting to $1,250,000 00.

As to the traffic future of the Canadian Northern Railway Company, it is difficult to forecast the earning power of the completed line with certainty, but Mr. D. B. Hanna, the Company's third Vice-President, who has had long experience in the operation of railways in Western and Eastern Canada, submits the following statement as an estimate of the results during the first three years after the System has been operating in accordance with present plans.

The estimate of gross earnings is on the very conservative basis of the percentage increases for the past five years of the lines of the System in actual operation and inasmuch as a part of the mileage has been disconnected and confined to a local short haul business, operation as a united trunk system should result in much greater per mile revenue.

	FOR THE YEAR ENDING 30TH JUNE		
	1916	1917	1918
	$	$	$
Gross earnings	54,000,000	61,000,000	67,000,000
Operating Expenses	38,880,000	43,300,000	46,900,000
Net earnings	15,120,000	17,700,000	20,100,000
Fixed charges, including Interest on securities at present applied for	12,607,115	14,019,615	14,807,115
Surplus	2,512,885	3,680,385	5,292,885
LESS—Interest on 5% Income Debenture Stock	1,250,000	1,250,000	1,250,000
	1,262,885	2,430,385	4,042,885

NOTE.—Under the terms of the British Columbia guarantee, if during the first three years after beginning operation, the Net Earnings of the Company are not sufficient to meet the interest on the Guaranteed Bonds, the Government is to advance the Interest.

Similar provisions are made respecting the Dominion Guarantee of the Bonds on the Canadian Northern Ontario Railway between Montreal and Port Arthur.

CANADIAN NORTHERN RAILWAY SYSTEM.

ALL LINES—SUMMARY SHEET.

Name of Railway.	Miles in operation.	Track laid not in operation.	Grade Complete no track laid.	Grade not complete but under contract.	Amount req'd to complete construction.	Estimated Cost of Betterments.							
						Ballast	Rails.	Additional sidings.	Buildings	Filling trestles and bldg. permanent bridges.	Replacing light steel bridges.	Terminal Facilities.	Total.
					$	$	$	$	$	$	$	$	$
No. 1. Can. Nor. Pacific Ry		260	264	155	23,647,492								
No. 2. Can. Nor. Alberta Ry	22	229			523,959								
No. 3. Can. Nor. Western Ry		189	154		310,088	25,000		20,000					45,000
No. 4. Canadian Northern Ry	4,932	164	251	93	5,402,712	712,000	3,850,000	125,000	307,000	2,030,000	125,000	856,000	8,005,000
No. 13. Can. Nor. Sask Ry			33	12	457,847								
No. 5. Can. Nor. Ontario Ry	699	700	128	52	11,645,467	16,000	130,000	15,000	4,000	275,000	390,000		830,000
No. 6. Irondale, Bancroft & Ottawa Railway	55												
No. 7. Central Ontario Railway	165												
No. 8. Bay of Quinte Ry	55												
No. 9. Brockville, Westport & North Western Ry	44												
No. 10. Can. Nor. Quebec Ry	354					25,000	250,000			265,000	330,000		870,000
No. 11. Quebec and Lake St. John Ry	293		20	11			155,000				20,000		175,000
No. 12. Halifax & S-W. Ry	370					35,000	15,000	5,000	20,000				75,000
Duluth, Wpg. & Pac. Ry	172												
	7,161	1,542	850	323	41,987,565	813,000	4,400,000	165,000	331,000	2,570,000	865,000	856,000	10,000,000

NOTE.—The amount proposed to be expended on betterments, &c., has been distributed to the best of our knowledge, but it must not be assumed as restricting us in using the funds for other betterments if it is found that the expenditure on such betterments are in the best interests of the Road.

Montreal Terminals		$ 5,995,734
Construction as above		41,987,565
Amount due on Construction:		
Sub-contractors' accounts, &c., not in above, see accompanying Statement:		
Western Lines	$ 8,348,290	
Eastern Lines	6,606,424	
		14,954,714
Rolling Stock		27,441,086
Betterments		10,000 000
		$ 100,379,099
Proceeds of securities earned or available against the above		58,473,982
Balance		$ 41,905,117

Ottawa, 14th March, 1914.

Certified Correct,
D. B. HANNA, A. J. MITCHELL.

CANADIAN NORTHERN RAILWAY SYSTEM.

Lines in British Columbia.

Name of Railway.	Main Line, Section or Branch Line.	Termini.		Miles in Operation	Track Laid, not in Operation	Grade completed no track laid.	Grade not Complete under Contract.	Amount req'd to complete construction.	Approx. date to complete	Approximate Estimate of Betterments for 6 years					
		From	To							Ballast.	Rails.	Sidings Additional.	Buildings.	Filling Trestles and bldg. Permanent Bridges.	Replacing Light Steel Bridges.
No. 1. Can. Nor. Pacific Ry...	Main Line.....	New Westminster...	Yellowhead	.....	245	189	66	$17,808,827	Oct. 1914	.....	.....	.....	.....	.....	.....
No. 1. " " ...	Branch Line..	Main Line..	Kamloops..	.....	4	.....	.....	.....	Complete	.....	.....	.....	.....	.....	.....
No. 1. " " ...	"	New Westminster...	Steveston...	.....	11	.....	3	344,964	Oct. 1914	.....	.....	.....	.....	.....	.....
	(Lulu Island)														
No. 1. " " ...	Main Line.....	Victoria....	Albernia....	.....	.....	75	71	4,731,413	July 1915	.....	.....	.....	.....	.....	.....
No. 1. " " ...	Branch Line..	"	PatriciaBay	.....	.....	.....	15	762,288	Oct. 1914	.....	.....	.....	.....	.....	.....
				.....	260	264	155	23,647,492	.....	.....	.....	.....	.....	.....	.....

CANADIAN NORTHERN RAILWAY SYSTEM.

Lines Between Montreal and Port Arthur.

No	Name of Railway.	Main Line, Section or Branch Line.	Termini. From:	Termini. To:	Miles in Operation.	Track laid, not in operation.	Grade com'd. No tract laid.	Grade not complete, but under contract	Amount req'd to complete construct'n.	Approx. date of completion.	Approximate Estimate of betterments for 6 years. Ballast.	Rails.	Sidings addit'l.	Buildings.	Filling trestles and bl'g permanent bridges	Replacing light steel bridges.	Terminal Facilities.	Total.
									$		$	$	$	$	$	$	$	$
5.	C. N. Ont. Ry	Main Line.....	Montreal	Pt. Arthur.	142	700	128	52	11,387,324	Dec. 1914	16,000	130,000	.....	.....	150,000	390,000	.....	686,000
5	" "	"	Rideau Jct.	East Don Jc	245	.....	.....	.....	258,143	July 1914	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	"	Toronto.	Capreol.....	276	.....	.....	.....	.....	.....	.....	.....	15,000	4,000	125,000	.....	.....	144,000
5	" "	Branch Line..	Udney	Atherley Jct	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	" ..	Key Jct.	Key Harbor	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	" ..	Sudbury Jct	Sudbury....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	" ..	Garson Jct.	Garson Mine	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	" ..	Sellwood Je.	Sellwood....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5.	" "	Spur.....	Oshawa.		3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
					699	700	128	52	11,645,467	.....	16,000	130,000	15,000	4,000	275,000	390,000	.....	830,000
6.	Irondale Bancroft & Ottawa.....	Branch.....	Bancroft	Kinmount Jct..	55													
7.	Central Ont. R	"	Picton	Wallace & Coe Hill..	155													
8.	Bay of Quinte Railway.....	"	Yarker	Bannockburn.....	55													
9.	Brockville, Westport & N. W. Railway.	"	Brockville	Westport....	44													

14 March, 1914.

A. T. Stewart,
Chief Engineer.

CANADIAN NORTHERN RAILWAY SYSTEM.

Lines Between Port Arthur and Yellowhead Pass.

No.	Name of Railway.	Main Line, Section or Branch Line.	Termini. From:	Termini. To:	Miles in Operation.	Track laid, not in operation.	Grade comp'd. Notract laid.	Grade notcomplete, but under contract	Amount req'd to complete construct'n.	Date of completion.	Approximate Estimate of betterments for 6 years. Ballast.	Rails.	Sidings addit'l.	Buildings.	Filling trestles and bl'g permanent bridges	Replacing light steel bridges.	Terminal Facilities.	Total.
									$		$	$	$	$	$	$	$	
4.	Can. Nor. Ry.	Main Line	Pt. Arthur	Edmonton	1266						450,000	3,000,000	80,000	295,000	2,000,000		750,000	6,575,000
4.	"	Branch Line	Twin City Jc.	Gunflint	73						5,000				5,000			10,000
4.	"	"	South Jct.	Emerson	73													
4.	"	"	Winnipeg Cut off			3	1		843,850	Dec. 1914								
4.	"	"	Portage Jct.	Emerson	63						15,000	300,000				125,000		440,000
4.	"	"	Winnipeg	Birds Hill	9										10,000			
4.	"	"	Carmen Jct.	Somerset	79													10,000
4.	"	"	Winnipeg	Gr. Marais			51		434,223	Dec. 1914								
4.	"	"	Oak Pt. Jct	Gypsumville	158						15,000							15,000
4.	"	"	Grosse Isle	End of grade	31	7	32		248,778	Dec. 1914								
4.	"	"	Deerfield Spur		12								3,000					3,000
4.	"	"	Delta Jct.	to Delta	15													
4.	"	"	Oakland	End of steel	34													
4.	"	"	Arizona Jct.	Regina	297						50,000		20,000	5,000			40,000	115,000
4.	"	"	Regina	Pr. Albert	250						25,000	550,000	10,000				20,000	605,000
4.	"	"	Craven Spur		4		6		'x'									
4.	"	"	Brandon	Carberry	23													
4.	"	"	Morris	Brandon	145						15,000							15,000
4.	"	"	Hartney Jc.	Virden	89													
4.	"	"	Greenway	Deloraine	52	28					5,000							5,000
4.	"	"	Maryfield	Bengough	184						10,000						10,000	20,000
4.	"	"	Buxton	Bienfait	17													
4.	"	"	Estevan	Bienfait			9		104,067	Dec. 1914								
4.	"	"	Radville	Moose Jaw	86				450,142	" "								
4.	"	"	Avonlea	Gravelburg	79				52,000	" "								
4.	"	"	Saskatoon	Calgary	320	79			387,222	" "	30,000			5,000			21,000	56,000
4.	"	"	Delisle	Elrose N.W.	101		34	42	999,780	" "								
4.	"	"	Elrose Jct.	Southwards	9													
4.	"	"	Neepawa Jc.	McCreary Jc	70										10,000			10,000
4.	"	"	Rossburn Jc	Ross Jct.	191						10,000							10,000
4.	"	"	Hallboro	Beulah	75						10,000							10,000
4.	"	"	Oka River	End of steel	15													
4.	"	"	N. Jct.	Pr. Albert	361						35,000		12,000				15,000	62,000
4.	"	"	Sifton	Winnipegosis	21													
4.	"	"	Thunder Hill	Preeceville	73													
4.	"	"	H. Bay Jct.	Pas Mission	88						10,000			2,000				12,000
4.	"	"	Melfort	Humbolt	22		4		'x'									

4.	Can. Nor. Ry.	Branch Line..	Pr. Albert	Denholm...	117	.....	.....	.....	28,472	Dec.	1914	10,000	.....	.....	.....	.....	.....	.....	10,000
4.	" ..	" ..	Shelbrook	Big River..	57	.....	.....	.....	.....			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Canora	Sturgis.....	.....	.....	21	.....	176,039	Dec.	1914	.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Vonda	North.....	.....	.....	23	.....	"x"			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Dalmeny	Carleton. ..	28	.....	10	.....	114,153	Dec.	1914	.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	N. Battleford	Mervine....	52	.....	5	.....	"x"			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Battleford Jct.	Battleford..	8	.....	.....	.....	.....			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Vegreville	Munson.....	163	.....	.....	.....	.....			15,000	.....	.....	.....	5,000	.....	.....	20,000
4.	" ..	" ..	Camrose	Strathcona.	.....	47	.....	.....	.....			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Edmonton	Athabasca..	94	.....	.....	.....	.....			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Edmonton	Stoney Plains....	21	.....	.....	.....	.....			.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Edmonton	Strathcona..	7	.....	.....	.....	.....			2,000	.....	.....	.....	.....	.....	.....	2,000
4.	" ..	" ..	Red Deer	Lacombe...	.....	.....	7	.....	54,100	Dec.	1914	.....	.....	.....	.....	.....	.....	.....	
4.	" ..	" ..	Calgary	Macleod....	.....	.....	48	51	1,509,886	"	1914	.....	.....	.....	.....	.....	.....	.....	
					4,932	164	251	93	5,402,712	.....		712,000	3,850,000	125,000	307,000	2,030,000	125,000	856,000	8,005,000
2.	Can.N.A. Ry.	Main Line.....	St. Albert	Yellowhead	22	229	.....	.....	523,959	Dec.	1914	.....	.....	.....	.....	.....	.....	.....	
3.	C. N. W. Ry..	Branch Line..	Camrose, S. E.	.....	.....	.....	66	.....	"x"	.....		.....	.....	.....	.....	.....	.....	.....	
3.	" ..	" ..	Warden	Brazeau....	.....	157	17	.....	310,088	Dec.	1914	25,000	.....	20,000	.....	.....	.....	.....	45,000
3.	" ..	" ..	Strathcona	Calgary....	.....	.....	11	.....	"x"	.....		.....	.....	.....	.....	.....	.....	.....	
3.	" ..	" ..	Onoway	Peace River	.....	32	42	.....	"x"	.....		.....	.....	.....	.....	.....	.....	.....	
3.	" ..	" ..	Oliver	North....	.....	.....	15	.....	"x"	.....		.....	.....	.....	.....	.....	.....	.....	
3.	" ..	" ..	Bruderheim	Easterly....	.....	.....	3	.....	"x"	.....		.....	.....	.....	.....	.....	.....	.....	
					.....	189	154	.....	310,088	.....		25,000	.....	20,000	.....	.....	.....	.....	45,000
3.	C. N. Sask. Ry	Branch Line.	Wroxton	Yorkton....	.....	.....	33	12	457,847	Dec.	1914	.....	.....	.....	.....	.....	.....	.....	
					4,954	582	438	105	6,694,606	.....		737,000	3,850,000	145,000	307,000	2,030,000	125,000	856,000	8,050,000

J. N. Hempgood,
Chief Engineer.

CANADIAN NORTHERN RAILWAY SYSTEM.

Lines East of Montreal.

No.	Name of Railway.	Main Line, Section or Branch Line.	Termini. From:	Termini. To:	Miles in Operation.	Track laid, not in operation.	Grade comp'd No track laid.	Grade not complete, but under contract	Amount req'd to complete construct'n.	Approx. date of completion	Approximate Estimate of betterments for 6 years. Ballast.	Rails.	Sidings addit'l.	Buildings.	Filling trestles and bl'g permanent bridges	Replacing light steel bridges.	Terminal Facilities.	Total.
									$		$	$	$	$	$	$	$	$
12.	Halifax & S. W.	Main Line....	Halifax	Yarmouth..	248	.....	.....	.....	.....	.....	35,000	15,000	5,000	20,000	.....	.....	.....	75,000
12.	" ..	Branch Line..	Mahone Jct.	Lunenburg..	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
12.	" ..	" ..	Bridgewater	Middleton..	54	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
12.	" ..	" ..	Middleton	Pt. Wade...	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
12.	" ..	" ..	New Germany	Caledonia..	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
					370	.....	.....	.....	.....	.....	35,000	15,000	5,000	20,000	.....	.....	.....	75,000
11.	Q.&L. St. John	Main Line....	Quebec	Chicoutimi	227	.....	.....	.....	.....	.....	.....	155,000	.....	.....	20,000	.....	.....	175,000
11.	" ..	Branch Line..	Hedleyville	Montmor'nci	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
11.	" ..	" ..	Gosford Jc.	Gosford....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
11.	" ..	" ..	La Tuque Jc	La Tuque...	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
11.	" ..	" ..	Chambord	Roberval...	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
11.	" ..	" ..	Roberval	Dufferin....	.....	.....	20	11	509,014	.....	.....	.....	.....	.....	.....	.....	.....	
					293	.....	20	11	509,014	.....	.....	155,000	.....	.....	20,000	.....	.....	175,000
10.	C. N. Que. Ry.	Main Line.....	Quebec	Montreal....	176	.....	.....	.....	.....	.....	25,000	250,000	.....	.....	230,000	300,000	.....	805,000
10.	" ..	" ..	Lorette Jct.	Viaduct Jct.	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
10.	" ..	" ..	St. Marc	Quarries....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
10.	" ..	" ..	Riviere à Pierre	Garneau Jc.	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,000	15,000	.....	25,000
10.	" ..	" ..	Shawinigan Jc.	Shawinigan Falls.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
10.	" ..	Main Line.....	Joliette	Hawkesb'ry	67	.....	.....	67	.....	.....	.....	.....	.....	.....	25,000	15,000	.....	40,000
10.	" ..	Branch Line..	St. Jacques	Rawdon	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
10.	" ..	" ..	St. Jerome	Huberdeau.	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
					354	.....	.....	.....	.....	.....	25,000	250,000	.....	.....	265,000	330,000	.....	870,000

14th March, 1914.

A. F. Stewart,
Chief Engineer.

SESSIONAL PAPERS Nos. 269b, j, j, l, m.

CANADIAN NORTHERN RAILWAY SYSTEM.

CAPITAL STOCK AUTHORIZED AND ISSUED, OF THE COMPANIES SET OUT IN THE FIRST SCHEDULE.

Company.	Authorized.	Issued.
Bay of Quinte Railway Company	$ 1,500,000 00	$ 1,395,000 00
Canadian Northern Railway Company	92,900,000 00	77,000,000 00
Canadian Northern Pacific Railway Company	25,000,000 00	25,000,000 00
Canadian Northern Alberta Railway Company	3,000,000 00	3,000,000 00
Canadian Northern Western Railway Company	6,000,000 00	2,000,000 00
Canadian Northern Saskatchewan Railway Company	5,000,000 00	1,000,000 00
*Canadian Northern Manitoba Railway Company	1,000,000 00	Nil*
Canadian Northern Ontario Railway Company	50,000,000 00	10,000,000 00
Canadian Northern Quebec Railway Company	12,500,000 00	9,550,000 00
Canadian Northern Railway Express Company Limited	1,000,000 00	1,000,000 00
**Canadian Northern Transfer Company	500,000 00	**500,000 00
Canadian Northern Telegraph Company	5,000,000 00	500,000 00
Canadian Northern Steamships Limited	2,000,000 00	2,000,000 00
Canadian Northern System Terminals Limited	2,000,000 00	2,000,000 00
Central Ontario Railway Company	3,340,000 00	3,331,000 00
Duluth, Winnipeg & Pacific Railway Company	6,000,000 00	6,000,000 00
Halifax & South Western Railway Company	1,000,000 00	1,000,000 00
Irondale, Bancroft & Ottawa Railway Company	100,000 00	53,500 00
Lake Superior Terminals Company Limited	1,000,000 00	500,000 00
Minnesota & Ontario Bridge Company	100,000 00	100,000 00
Minnesota & Manitoba Railroad Company	1,000,000 00	400,000 00
Marmora Railway & Mining Company	100,000 00	100,000 00
***Mount Royal Tunnel & Terminal Company Limited	5,000,000 00	Nil***
Niagara, St. Catharines & Toronto Railway Company	1,000,000 00	925,000 00
Quebec & Lake St. John Railway Company	6,000,000 00	4,524,000 00
Qu'Appelle, Long Lake & Saskatchewan Railroad & Steamboat Company	£ 200,000 00	$ 201,000 00
St. Boniface & Western Land Company	$ 250,000 00	250,000 00
Winnipeg Land Company, Ltd	100,000 00	100,000 00
Northern Consolidated Holding Company	8,000,000 00	6,181,500 00
		$158,611,000 00

*When issued will be issued to Canadian Northern Railway Company.
**Owned by the Canadian Northern Railway Express Company, Ltd.
***None issued at present;—when issued will be issued to the Canadian Northern Railway Company.

OTTAWA, March 31st, 1914.

SIR,—The undersigned have the honour to transmit you herewith certain statements as of December 31st, 1913, bearing on the financing of the Canadian Northern Railway System; namely:—

(Partially printed.)

1. Grouping and Mileage Statement.
2. Statement showing total receipts and expenditure on Construction, Betterments and Equipments.
3. Statement showing expenditure on Construction and Equipment through the Contractors, Messrs. Mackenzie, Mann & Company.
4. Statement showing expenditure on Betterments and Equipment, chargeable to Capital.
5. Statement of Capital Stock, authorized and issued.
6. Statement of Securities issued, showing:—
   - (a) Line.
   - (b) Class of Security, and rate of interest carried.
   - (c) Par value.
   - (d) Fixed charges.
   - (e) Proceeds.
   - (f) Bank interest on balances.
   - (g) Rate of interest on balances.
   - (h) Total proceeds.
   - (i) Withdrawals through Messrs. Mackenzie, Mann & Company on Construction Account.
   - (j) Withdrawals through Canadian Northern Railway Co.
   - (k) Total withdrawals.
   - (l) Balances on hand in bank.

   Also supporting statements as follows:—
   - (a1) Statement showing amount of securities deposited as collateral.
   - (a2) Statement showing authority for various issues.
   - (a3) Statement showing charters of various Companies.
   - (a4) Memorandum *re* Bonding Powers.
   - (a5) Statement showing reconciliation of expenditure through Contractors, Messrs. Mackenzie, Mann & Company.
   - (a6) Statement showing due dates of principal and interest.
7. Statement showing Cash Subsidies from all sources.
8. Land Statement.
9. Equipment Summary.
10. Due Dates of Principal and interest of Equipment Securities.

The undersigned have verified these statements from the entries in the ledgers of the Head Office of the Company at Toronto, and of the Contractors, Messrs. Mackenzie, Mann & Company of the same place.

With regard to the lines west of Port Arthur, the books of the construction of the lines in British Columbia are kept in Vancouver, and the books of the construction of the lines between Port Arthur and Yellowhead Pass are kept in Winnipeg. From these offices, monthly statements are forwarded to the Head Office in Toronto, and from these statements, we have verified the expenditure on construction relative to that portion of the System.

We would direct attention to the fact that the Railway Company have received any benefits accruing from such subsidiary Companies, as the Express and Telegraph Companies, Steamship Companies, and certain benefits from the Townsite Companies.

Our work in Toronto was greatly facilitated by the evident desire on the part of the officials of the Canadian Northern Railway and of the Contractors, Messrs. Mackenzie, Mann & Company to place in our hands all the books, memoranda, etc. pertaining to our work.

We have the honour to be,
Sir,
Your obedient servants,
G. A. Bell,
Financial Comptroller, Department of Railways and Canals.

S. L. Shannon,
Comptroller & Treasurer, Canadian Government Railways.

J. C. Saunders,
Chief Accountant & Dominion Bookkeeper, Department of Finance.

The Right Honourable
R. L. Borden, M.P.,
Prime Minister of Canada,
Ottawa, Ont.

The Canadian Northern Railway System dealt with in the statements submitted, including the following lines:—

—	In operation.	Track laid not in operation.	Grade completed. No track laid.	Grade not complete under contract.
Canadian Northern Pacific Ry Lines in Province of British Columbia. Termini—Vancouver, Yellowhead Pass. Vancouver Island:—Victoria, Alberni.		260·05	264·33	162·35
Canadian Northern Alberta Ry Lines in Province of Alberta. Termini—Edmonton and Yellowhead Pass.	22·00	229·10		
Canadian Northern Railway Lines in Province of Alberta, Saskatchewan, Manitoba and Ontario. Termini—Edmonton and Port Arthur.	4,931·98	164·33	250·35	
Canadian Northern Western Ry Lines in Province of Alberta. Termini—Various Branch Lines.		188·80	154·82	
Canadian Northern Saskatchewan Ry Lines in Province of Saskatchewan. Termini—Various Branch Lines.			32·72	
Duluth, Winnipeg & Pacific Ry Lines in State of Minnesota. Termini—Duluth and Ft. Frances.	171·6			
Canadian Northern Ontario Ry Lines in Provinces of Ontario and Quebec. Termini—Port Arthur, Montreal, Toronto.	698·8	699·9	128·0	58·35
Central Ontario Railway Lines in Province of Ontario. Termini—Picton and Rathburn.	155·4			
Bay of Quinte Railway Lines in Province of Ontario. Termini—Bannockburn and Deseronto.	55·0			
Irondale, Bancroft & Ottawa Ry Lines in Province of Ontario. Termini—Bancroft Jct., Kinmount Jct.	54·7			
Marmora Railway & Mining Co: Lines in Province of Ontario. Termini—Marmora, Wariston.	9·6			
Brockville, Westport & N. W. Ry Lines in Province of Ontario. Termini—Brockville, Westport.	44·3			
Canadian Northern Quebec Ry Lines in Province of Quebec. Termini—Quebec, Montreal, Hawkesbury.	362·23			
Quebec & Lake St. John Ry Lines in Province of Quebec. Termini—Quebec and Roberval.	285·4			
Halifax & South Western Ry. Province of Nova Scotia. Termini—Halifax and Yarmouth.	370·5			
	7,161·51	1,542·26	850·52	230·8

CANADIAN NORTHERN RAILWAY SYSTEM.

Statement of Receipts available for construction, Betterments, Equipments, etc.

Total proceeds as per statement	$ 246,768,389.16	
Less Bank Balance for construction purpose held by Trustees	29,729,078.81	
Total receipts from Securities		$ 217,039,310.35
Cash Subsidies		25,323,780.22
Net receipts from Land Sales		7,842,466.83
Receipts from Equipment Mortgages		32,811,467.87
Halifax & South Western Ry. Land A C		175,090 11
Halifax & Yarmouth Bonds		675,000 00
Sundry Accounts		724,189 42
Total Receipts,		$ 284,591,304 80
Due on construction		21,262,527 26
		$ 305,853,832 06

Expenditure.

Construction as per statement	$ 244,670,169 24	
Payments in reduction of Equipment Trusts	14,090,456 67	
Direct purchase of Equipment	1,500,596 19	
Direct purchase of Equipment, allied lines	794,699 33	
Expenditure on Betterments	22,834,390 00	
Acquired Securities, paid direct	5,435,612 52	
Advances to Railway Companies allied to Canadian Northern Railway	12,726,418 46	
Expenditure, Winnipeg Terminals, from proceeds of Guaranteed Securities	3,801,489 65	
		$ 305,853,832 06

MACKENZIE, MANN & COMPANY, LIMITED.

Statement showing amounts derived from Cash Subsidies received from Dominion Government, Provincial Governments, Municipalities and Guaranteed and other Securities.

Cash Subsidies—	
Dominion Government	$ 21,376,530 22
Provincial Governments	3,877,250 00
Municipalities	70,000 00
Securities—	
Guaranteed Securities	108,407,501 10
Other Securities	89,676,360 66
	$ 223,407,641 98

EXPENDITURE.

Construction and Equipment	$ 244,670,169 24
Due to Messrs. Mackenzie, Mann & Co.	$ 21,262,527 26

CANADIAN NORTHERN RAILWAY SYSTEM.

Expenditure on Construction through Contractors, Messrs Mackenzie, Mann & Co., to December 31st, 1913.

EXPENDITURE.

Halifax & South Western Ry.		$ 5,663,972 42
Canadian Northern Quebec		4,222,889 62
Canadian Northern Ontario		52,815,623 10
Canadian Northern-Lines (between Port Arthur and Yellowhead Pass)	$ 109,095,627 25	
Port Arthur & Yellowhead Pass, Equipment Trusts	32,811,467 87	
		141,907,095 12
Canadian Northern Pacific		34,760,907 76
Duluth, Winnipeg and Pacific		5,299,681 22
		$ 244,670,169 24

RECEIPTS.

Halifax & South Western.			
Dom. of Canada-Cash Subsidy	$ 1,364,210 00		
Prov. of Nova Scotia Subsidy	2,804,450 00		
Halifax & Yarmouth Ry. Bonds	675,000 00		
Lands $ 300,000 00			
Less Mtge. $100,000 00			
Int. $24,909 89			
	$124,909 89	$ 175,090 11	$5,018,750 11
Canadian Northern Quebec.			
Dom. of Canada Cash subsidy	$ 707,563 83		
4% Perpt. Guaranteed Deb. Stk	2,421,164 82		$3,128,728 65
Canadian Northern Ontario.			
James Bay—			
Dom. of Canada Cash subsidy	$ 1,872,960 00		
Town of Parry Sound Bonus	20,000 00		

3½% Deb. Stk. Guaranteed by Ontario Government	$ 5,591,977 96		
Terminal Deb. Stk. Guaranteed by Ontario Government	965,000 00		
Toronto to Ottawa.			
Dom. of Canada Cash Subsidy	1,363,122 39		
Montreal-Port Arthur.			
Dom. of Canada Cash Subsidy	6,886,388 00		
3½% D. Stock guaranteed by Dominion of Canada	20,149,256 53		
4% D. Stock guaranteed by Can. Nor. Ont. Ry.	6,882,713 13	$43,731,418 01	
		$51,878,896 77	$244,670,169 24

Canadian Northern—Lines between Port Arthur and Yellowhead Pass.

Dom. of Canada Cash Subsidy, Can. Nor. Railway	$ 2,000,332 00	
Dom. of Canada Cash Subsidy, Can. Nor. Alberta	2,832,024 00	
Ontario Government	1,072,800 00	
C. N. Ry. 3% D. Stock guaranteed by Dom. of Can.	8,523,597 43	
Can. Nor. Ry. 3½% D. Stk. guaranteed by Dom. of Can.	6,873,890 93	
Can. Nor. Alberta, 3½% D. Stock, guaranteed by Dom. of Canada	4,391,077 30	
Can. Nor. Ry. 4% Deb. Stk. guaranteed by Alberta Govt	7,866,929 64	
C. N. Western 4½% D. Stk. guaranteed by Alberta Govt	2,407,230 70	
C. N. Western 4½% Deb. Stock guaranteed by Alta. Govt	2,563,474 54	
C. N. Ry. 4% Deb. Stock guaranteed by Saskatchewan Govt	8,695,043 96	
C. N. Ry. 4% Deb. Stock guaranteed by Manitoba Government	12,437,344 33	
C. N. Ry. 4% Deb. Stock guaranteed by Manitoba Government	2,987,173 33	
Municipal Bonus, City of Port Arthur	50,000 00	

Can. Nor. Ry., 4% Deb. Stk. " 4% " "terminal Accts.	$17,602,398 05	
Can. Nor. Ry., 4% Land Grant Bonds	3,679,125 30	
Can. Nor. Ry., 5% Income Bonds	12,875,175 99	
Can. Nor. Ry., Land Mortgage Deb. Stock	6,200,000 00	
Can. Nor. Ry., 5% Notes	1,650,000 00	
Can. Nor. Ry., 4% D. S. guaranteed by Prov. of Manitoba	4,001,734 33	
		$ 108,709,351 83

Canadian Northern Pacific.

Dom. of Can. Cash Subsidy	$ 4,349,930 00	
C. N. Pacific 4% Deb. Stock guaranteed by B. C. Gov't	19,500,598 65	
C. N. Pacific 4½% Deb. Stock guaranteed by B. C. Government	1,453,171 47	
		$25,303,700 12

Duluth, Winnipeg and Pacific.

D. W. & P. Ry., 4% Deb. Stk	$ 4,704,225 39	
Imperial Rolling Stock Co	32,811,467 87	$223,407,641 98
Balance		$ 21,262,527 26

Canadian Northern Railway.

Statement showing amount derived from guaranteed Securities, Unguaranteed Securities and Land, other than that handled through Messrs Mackenzie, Mann & Co.

Unguaranteed Securities	$ 48,815,516 92
Guaranteed Securities	3,801,489 65
Land Funds	7,842,466 83
Sundry Accounts	724,189 42
	$ 61,183,662 82

Expenditure against above.

Payment in reduction of Equipment Trusts	$ 14,090,456 67	
Direct purchase of Equipment	1,500,596 19	
Direct purchase of Equipment, Allied Lines	794,699 33	
Betterments	22,834,390 00	
Acquired Securities	5,435,612 52	
Advance to Railway Companies Allied to Canadian Northern Ry	12,726,418 46	
Winnipeg Terminals, etc	3,801,489 65	
		$ 61,183,662 82

4-5 GEORGE V., A. 1914

CANADIAN NORTHERN

31st December,

Line.		Securities Issued.	Fixed Charges.	Proceeds.	Interest on Proceeds.
		$	$	$	$
	CANADIAN NORTHERN RAILWAY.				
1.	3 % Debenture Stock (Dom.)	9,359,996.72	280,779.86	8,385,683.07	137,914.36
2.	3½% Debenture Stock (Dom.)	7,896,590.00	276,380.52	7,514,054.12	208,399.04
3.	4 % Debenture Stock (Sask)	(a) 8,030,000.00	321,200.00	9,703,668.98	204,211.13
4.	4 % Debenture Stock (Alta.)	(b) 6,776,541.33	271,149.25	8,860,048.09	175,298.11
5.	4 % Debenture Stock (Man.)	(c) 2,859,998.86	114,399.94	3,975,345.46	25,942.43
6.	4 % Debenture Bond (Man.)	12,437,496.66	489,761.86	12,437,344.33	.....
7.	4 % Terminals (Man.)	3,000,000.00	120,000.00	2,880,000.00	61,660.33
8.	4½% O. Division	164,980.00	7,424.10	5,458,307.33	.....
9.	4 % O. Division (Man.)	5,580,606.66	223,224.26		
10.	4 % Land	3,196,426.00	127,857.00	3,679,125.30	.....
11.	4 % Debenture Stock	(d) 49,134,382.00	1,965,375.28	45,895,707.57	32,906.00
12.	5 % Income	25,000,000.00	1,250,000.00	24,038,447.95	11,398.45
13.	5 % Land	(1) 16,274,668.66	813,733.43	14,092,245.94	3,769.03
14.	6 % Notes	(e) 3,500,000.00	210,000.00	.....	.....
15.	5 % Notes	(f) 9,733,333.33	486,666.66	2,791,394.83	3,763.79
16.	5 % Notes	(g) 2,190,000.00	109,500.00	647,003.13	.....
17.	Equipment	23,746,000.00	1,034,316.25	.....	.....
18.	Qu'Appelle L.L.S. 4%	5,051,463.73	202,056.02	.....	.....
	CANADIAN NORTHERN ALBERTA RY.				
19.	(3½ D. S.) (Dom.)	(h)	.....	2,899,001.77	31,046.54
20.	(3½ D. S.) (Dom.)	3,149,998.66	110,249.94	2,890,179.03	72,018.15
	CANADIAN NORTHERN WESTERN RY.				
21.	4½% Debenture Stock (Alta.)	6,424,000.00	289,080.00	2,541,997.91	4,712.48
				2,430,208.33	59,487.80
22.	4 % Bonds	2,800,000 00	112,420.00	2,537,613.69	25,860.85
	CANADIAN NORTHERN PACIFIC RY.				
23.	4 % Debenture Stock (B.C.)	(i) 16,412,001.13	656,480,00	19,500,598.65	235,735.11
24.	4½% Debenture Stock (B.C.)	8,273,335.33	372,299.99	7,570,759.54	45,837.36
	CANADIAN NORTHERN ONTARIO RY.				
25.	3½% Debenture Stock (Dom.)	(j) 34,066,666.66	1,192,333.33	31,914,973.38	1,001,038.67
26.	3½% Debenture Stock (Ont.) J.B.	6,664,379.26	233,253.26	6,997,121.52	174,557.50
		1,195,618.33	41,846.64		
27.	4 % Debenture Stock	(k) 11,438,637.66	457,445.48	8,659,256.12	208,127.07
	CENTRAL ONTARIO RY. CO.				
28.	5 % Bonds	973,333.33	48,666.66	.....	.....
	BAY OF QUINTE RAILWAY CO.				
29.	5% Bonds	830,000.00	41,500.00	.....	.....
30.	MARMORA RAILWAY & MINING CO.	.....	.....	.....	.....
31.	THE BROCKVILLE WESTPORT & N.W. RY. CO.	.....	.....	.....	.....
32.	THE IRONDALE BANCROFT & OTTAWA RY. CO.	450,000.00	22,500.00	.....	.....
	CANADIAN NORTHERN QUEBEC.				
33.	4% Debenture Stock	5,250,369.26	210,014.76	2,496,366.58	.....

SESSIONAL PAPERS Nos. 269b, i, j, l, m.

RAILWAY SYSTEM.

1913.

Rate of Interest.	Total Proceeds.	Withdrawals on Construction.	Other Withdrawals.	Total Withdrawals.	Balance on Hand.	
	$	$	$	$	$	
3%	8,523,597.43	8,523,597.43	.....	8,523,597.43	.....	
3%	7,723,053.16	6,873,890.93	.....	6,872,890.93	849,162.23	
3%	9,907,880.11	8,695,043.96	198,839.52	8,893,883.48	1,013,996.63	
3%	9,035,346.20	7,866,939.64	.....	7,866,929.64	1,168,416.56	
3%	4,001,287.79	2,987,173.33	.....	2,987,173.33	1,014,114.56	
.....	12,437,344.33	12,437,344.33	.....	12,437,344.33	.....	
3%	2,941,660.33	.....	2,941,660.33	2,941,660.33	.....	
.....	4,001,734.33	4,001,734.33	.....	4,001,734.33	.....	Wpg. & Hudson Bay Ry. Bonds
.....	3,679,125.30	3,679,125.30	.....	3,679,125.30	.....	retired $1,456,573
3%	45,928,613.57	17,602,398.05	28,014,762.02	45,617,160.07	311,453.50	
3%	24,049,846.40	12,875,175.99	11,174,670.41	24,049,846.40	.....	
3%	14,096,014.97	6,200,000.00	7,851,824.69	14,051,824.69	44,190.28	
.....	.....	.....	.....	.....	.....	
3%	2,795,158.62	1,650,000.00	1,127,256.67	2,777,256.67	17,901.95	
.....	647,003.13	.....	647,003.13	647,003.13	Nil.	
.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	Exchanged for Prior Lien bds. 1st Mtge. Income and Hotel.
3%	2,930,048.31	1,767,150.00	.....	4,391,007.30	1,162,898.31	
3%	2,962,197.13	2,623,927.30	.....		338,269.83	
3%	2,546,710.39	2,407,230.70	.....	2,407,230.70	139,479.69	
3%	2,489,696.13	.....	.....	.....	2,489,696.13	
3%	2,563,474.54	2,563,474.54	.....	2,563,474.54	.....	
3%	19,736,333.76	19,500,598.65	235,735.11	19,736,333.76	.....	
3%	7,616,596.90	1,453,171.47	45,837.36	1,499,008.83	6,117,588.07	
3%	32,916,012.05	20,149,256.53	379,417.33	20,528,673.86	12,387,338.19	
3%	7,171,679.02	6,556,977.96	.....	6,556,977.96	614,701.06	
3%	8,867,383.19	6,882,713.13	.....	6,882,713.13	1,984,670.06	
.....	.....	.....	.....	.....	.....	Outstanding Securities on acquired line.
.....	.....	.....	.....	.....	.....	Outstanding Securities on acquired line.
.....	.....	.....	.....	.....	.....	Acquired line.
.....	.....	.....	.....	.....	.....	Acquired line.
.....	.....	.....	.....	.....	.....	Outstanding Securities on acquired line.
.....	2,496,366.58	2,421,164.82	.....	2,421,164.82	.....	Retired— C. & N.— $1,440,000 Q.N. B. & N.S.— 2,000,000 G.N.R. of C.— 1,514,500

Line.	Securities Issued.	Fixed Charges.	Proceeds.	Interest on Proceeds.
Canadian Northern Quebec—*Con.*	$	$	$	$
34. 4% G.N.R.	3,505,750.00	140,230.00	.....	.....
35. 4% Q. L. & St. J.	4,359,014.93	174,360.58	.....	.....
Duluth, Winnipeg & Pacific.				
36. 4% Debenture Stock	6,646,323.92	265,852.96	4,650,919.94	53,305.45
37. 5% D. R. L. & W.	2,000,000.00	100,000.00	.....	.....
Halifax & South-Western Ry.				
38. 3½% Bonds	4,447,000.00	155,625.00	.....	.....
	$312,818,910.42	$12,927,983.03	.....	.....

SESSIONAL PAPERS Nos. 269b, j, j, l, m.

RAILWAY SYSTEM.

1913.

Rate of Interest.	Total Proceeds.	Withdrawals on Construction.	Other Withdrawals.	Total Withdrawals.	Balance on Hand.	
	$	$	$	$	$	
.....	.....	.....	.....	.....	.....	Retired G.N.R. 5% Bonds.
.....	.....	.....	.....	.....	.....	Retired— (a) 1st. Mortgage Bonds. (b) Prior Liens. (c) Income Bonds
3%	4,704,225 39	4,704,225 39	.....	4,704,225 39	.....	2nd Mtge. Bond— $1,525,000
.....	.....	.....	.....	.....	.....	Outstanding Securities on acquired line.
.....	.....	.....	.....	.....	.....	Retired Prior Liens.
	$246,768,389 16	$164,422,303 78	$52,617,006 57	$217,729,310 35	$29,729,078 81	

CANADIAN NORTHERN RAILWAY SYSTEM.

CAPITAL STOCK—AUTHORIZED AND ISSUED.

	Line.	Authorized.	Issued.	Held by or in trust for Can. Nor. Ry.	Held by M. M. & Co. and Associates.	Held by Government.	Held by Others.
		$	$	$	$	$	$
No.	1. Can. Nor. Ry.	92,900,000	77,000,000		70,000,000	7,000,000	
	2. Can. Nor. Alta. Ry.	3,000,000	3,000,000	3,000,000			
	3. Can. Nor. West. Ry.	6,000,000	2,000,000	2,000,000			
	4. Can. Nor. Sask. Ry.	5,000,000	1,000,000	1,000,000			
	5. Can. Nor. Pac. Ry.	25,000,000	25,000,000	25,000,000			
	6. Dul., Wpg. & Pac. Ry.	6,000,000	6,000,000	3,060,000	2,940,000		
	7. Can. Nor. Ont. Ry.	50,000,000	10,000,000	10,000,000			
"X"	8. Can. Nor. Que. Ry.	12,500,000	9,550,000		2,000,000		7,550,000
	9. Que. & L. St. J. Ry.	6,000,000	4,524,000		4,002,800		521,200
	10. Halifax & S.W. Ry.	1,000,000	1,000,000	1,000,000			
"XX"	11. Central Ont. Ry.	3,340,000	3,331,000				
"XX"	12. Bay of Quinte Ry.	1,590,000	1,395,000				
"XX"	13. I. B. & O. Ry.	100,000	53,500				
"XX"	14. Marmora Ry. & M. Co.	100,000	100,000				
"O"	15. Brockville, W. Ry.	2,000,000	900,000				
	16. N. St. C. & Tor. Ry.	1,000,000	925,000		922,000		3,000
		$215,440,000	$145,778,500				

"X" Of $7,550,000 Can. Nor. Que. Ry. Stock, $5,144,600 is owned by the Northern Consolidated Holding Co., of whose stock Mackenzie, Mann & Co. own 71·9%.

"XX" Stock of Branch Lines No. 11-14 inclusive held for Can. Nor. Ry. for delivery on payment of cost price.

"O" The Brockville, Westport & N.W. Ry. was secured at Court Sale, and will be turned over to the Railway Co. on payment of cost.

(*a*) C.N.R. Sask. Gt.—£500,000 deposited as security 5% notes—see 15—balance £1,650,000 shown issued here.

(*b*) C.N.R. Alta. Gt.—£450,000 deposited as security 5% notes—see 15—£44,495 deposited as collateral to loan of £33,082 balance £1,192,440

(*c*) C.N.R. Man. Gt.—£300,000, deposited as security 5% notes—see 15—balance £587,671.

(*d*) C.N.R. 4% Con. Deb. Stk.—Securities deposited as collateral to 5% notes Nos. 15 and £16,927,261 not included here.

(*e*) C.N.R. 6% Secured Notes.—Securities deposited as collateral to this issue £733,561, C.N.R. Alta 3½—see 19 and £293,837, C.N.O. 3½% Dominion Guar. Stock —see 25.

(*f*) C.N.R. 5% Secured Notes.—Securities deposited as collateral to this issue as follows:—£450,000 C.N.R. Alta. Gt. Stock, £500,000 4% Sask. Gt. £300,000 C.N.R. 4% Man. Gt. Stock £550,000 C.N.Pac. 4% B.C. Gt. Deb. Stock, £750,000, C.N.R. 4% Perpetual Consolidated Deb. Stk.

(*g*) C.N.R. 5% Secured Notes.—Securities deposited as collateral to the issue as follows:—£392,739, C. N.P. 4% B.C. Gt. D.S., £177,261, C.N.R. 4% Con. Per D.S.—see Nos. 23 and 11.

(*h*) C.N.A. 3½% Dom. Guar. D.S.—Securities deposited as collateral to C.N.R. 6% notes, £733,561—see 14.

(*i*) C.N.P. 4% B.C. Gt. D.S.—£550,000 and £392,739 deposited security to 5% notes—see Nos. 15 and 16.

(*j*) C.N.O. 3½% Dom. Gt. D.S.—£293,837 deposited as part security to 6% notes—see 14.

(*k*) C.N.O. 4% Deb. Stock.—£525,000 of this amount deposited as collateral to loan.

(*l*) C.N.R. 5% Land Debentures.—£44,110 securities deposited as collateral to loan of £33,000—see 13.

CANADIAN NORTHERN RAILWAY SYSTEM.

Construction Accounts.

31st December 1913.

RECONCILIATION.

Total Receipts on Construction		$ 223,407,641 98
Equipment	32,811,467 87	
H. & S. W. Land	175,090 11	
H. & Y. Bonds	675,000 00	
Subsidies	25,323,780 22	58,985,338 20
Receipts from Securities as per statement		$ 164,422,303 78

Statement of Cash Subsidies received from Dominion of Canada, Provincial Governments, and Municipalities, in aid of construction of lines.

Dominion of Canada.		
Canadian Northern Ry	2,000,332 00	
Canadian Northern Alberta	2,832,024 00	
Canadian Northern Pacific	4,349,930 00	
Canadian Northern Ontario	10,122,470 39	
Canadian Northern Quebec	707,563 83	
Halifax & South Western	1,364,210 00	
		21,376,530 22

Provincial Governments.		
Province of Ontario, Canadian Northern	$ 1,072,800 00	
Province of Nova Scotia, H. & S. W. Ry.	2,804,450 00	
		$ 3,877,250 00
Municipalities.		
Town of Port Arthur	50,000 00	
Town of Parry Sound	20,000 00	
		70,000 00
		$ 25,323,780 22

CANADIAN NORTHERN RAILWAY SYSTEM.

MEMORANDUM *re* LAND GRANTS ON 31ST DECEMBER, 1913.

	Acres.	Acres.	
Canadian Northern Ry. Co.	4,102,848		
Less retained by Mackenzie, Mann & Co.	100,000	4,002,848	
Total sales		3,145,312	
Balance unsold		857,536	
Cash realized from sales of land		$16,524,805 42	
Cash realized from rents, etc		255,447 58	
			16,780,253 00
Less, handed over to the Trustees		4,429,433 06	
Retained by Dom. Government on Transport agreement		353,048 87	
Expenses of Sales, Taxes, Surveys, etc		4,155,304 24	
			8,937,786 17

Amount used from Land account by the C.N.R. for general purposes ..... $ 7,842,466 83

Canadian Northern Railway acquired from the Dominion Government 11,457 acres of land for Right of Way, and for Townsite purposes 16,517 acres. For the latter the Railway paid $3.00 per acre.

Upon taking over the Qu'Appelle, Long Lake & Saskatchewan Railway, the land grant applicable thereto was retained by the vendors.

Canadian Northern Ontario Railway—

The Ontario Government granted the Canadian Northern Ontario Railway 4,000 acres per mile for 500 miles, between Sudbury and Port Arthur. This land has not yet been selected and no financial assistance has been received from it.

Canadian Northern Quebec Railway—

The Quebec Government granted the following acreages on the Lines mentioned:—

Garneau and Quebec, Limoilou Branch	152,150	acres.
Main Line to Bridge	10,320	"
St. Jerôme Branch	30,400	"
St. Jacques to Rawdon	47,880	"
Valcartier	11,400	"
Gosford	13,500	"
Montreal-Grenville	120,000	"
Roberval (J. B. & E.)	120,000	"

This land has not yet been selected and no financial assistance has been received from it.

Halifax & South Western Ry.—

Lands		$ 300,000 00	
Mortgages	$ 100,000 00		
Interest	24,909 89		
		124,909 89	
			$ 175,090 11

CANADIAN NORTHERN RAILWAY SYSTEM.

Equipment Summary, December 31st, 1913.

To Purchase under Equipment Trusts		$51,597,111 75
To Purchases by Canadian Northern Ry., direct		1,500,596 19
To Purchases by Allied Lines		794,699 33
		$53,892,407 27
By Cash Payments at time of creation of Equipment Trusts	$13,760,655 08	
By Payments in reduction of Equipment trusts	14,090,456 67	
By Payments direct by Canadian Northern Railway	1,500,596 19	
By Payments by Allied Lines	794,699 33	
		30,146,407 27
Balance due on Equipment Trusts		$23,746,000 00

CANADIAN NORTHERN RAILWAY COMPANY.

Equipment Scurities.

December 31st, 1913.

SUMMARY OF PRINCIPAL AND INTEREST PAYMENTS.

	Principal.	Interest.
1914	$ 3,493,000 00	$ 1,034,316 25
1915	3,497,000 00	875,416 25
1916	3,256,000 00	719,091 25
1917	3,023,000 00	576,771 25
1918	2,653,000 00	456,523 75
1919	2,488,000 00	330,451 25
1920	2,188,000 00	210,341 25
1921	1,708,000 00	121,391 25
1922	1,095,000 00	50,037 50
1923	345,000 00	8,687 50
	$ 23,746,000 00	$ 4,383,027 50

Office of the Solicitor General of Canada.
Ottawa, April 4th, 1914.

Dear Sir,— Referring to the audit made by yourself and Messrs Shannon and Saunders, relative to the expenditure for construction of the Canadian Northern Railway and its allied lines by the Canadian Northern Railway and the Mackenzie & Mann Company, Limited, the Government would like to have certain further information relative thereto.

Statement 3 submitted with your report shows a balance due on construction and equipment account of $21,262,527.26 and since the receipt of your report the officials of the Mackenzie & Mann Company, Limited, have submitted a statement showing how this is made up; a certain portion being due contractors and others and the balance, some $10,000,000.00 being shown as presumably due banks.

The Government would like to investigate and report upon this statement with the object of obtaining your certificate that it is correct and would particularly instruct that you investigate the amount owing to the banks with the object of ascertaining yourself that the Canadian Northern Railway are in no way liable by way of endorsement of the use of any of their assets as collateral to the loans.

I would further like you to make an audit of the Canadian Northern Railway bank account and to submit a certified statement of their standing.

My desire is to obtain from you an independent certificate of direct and indirect and contingent liabilities of the Canadian Northern Railway Company and of all allied lines.

You are hereby authorized to call in such experts as may be thought necessary to assist you in obtaining the necessary information.

Mr. Graham A. Bell
Financial Comptroller,
Department of Railways and Canals
Ottawa.

Yours very truly,
Arthur Meighen.

OFFICE OF THE SOLICITOR GENERAL OF CANADA.

OTTAWA, April 6th, 1914.

Mr. GRAHAM A. BELL,
Financial Comptroller,
Ottawa, Ont.

DEAR SIR,—Supplementary to my letter of the 4th inst., I would like you further to investigate and report on the following:—

1. *Re* capital stock issues of the following companies lodged with the National Trust Company Limited as trustees and if so what is the nature of the trust and did they automatically revert back to the Canadian Northern Railway upon discharge of certain obligations, and if so, what obligations.

(*a*) Canadian Northern Railway Express Co., Limited.
(*b*) Canadian Northern Transfer Company.
(*c*) Canadian Northern Telegraph Company.
(*d*) Canadian Northern Steamships Limited.
(*e*) Lake Superior Terminals Co., Limited.
(*f*) Minnesota & Ontario Bridge Company.
(*g*) Marmora Railway & Mining Company.
(*h*) St. Boniface & Western Land Co.
(*i*) Winnipeg Land Company, Limited.

2. Report upon Canadian Northern Systems Terminals, Limited, Canadian Northern Manitoba Railway, and Qu'Appelle, Long Lake & Saskatchewan Railway, such particulars as would have been given in your report of March 31st last had these Companies appeared in Statement 1 and such subsequent statements as referred to the Companies named in Statement 1.

3. Are the Manitoba leased lines taken by the Canadian Northern from the Manitoba Government by assignment of lease still the property of the C. N. R. in same way as they were after such assignment was taken.

4. Give tabular statement showing,

(*a*) Securities pledged as collateral only, not directly realized on.

(*b*) Balance of securities not yet issued but issued without further legislation of Governmental authority.

5. Give further particulars as to the item of $4,429,433.06 mentioned in statement eight (8) as handed over to trustees giving the obligation thus reduced.

You are authorized to employ in respect of any legal work which is included in the above, Mr. C. A. Masten, Barrister, of Toronto.

Very truly yours,
ARTHUR MEIGHEN.

OTTAWA, April 22nd, 1914.

SIR:—Pursuant to instructions contained in your letter of the 4th instant, and of your letter of the 6th instant in respect to further information required as to the financing of the Canadian Northern Railway System, the undersigned have the honour to report that they have obtained the information asked for, which is set out in the following statements, viz:

(PARTIALLY PRINTED.)

I.—Particulars of accounts and loans of the Contractors on Construction, outstanding 31st December 1913, amounting to $21,262,527.26

II.—Declaration by Alfred James Mitchell, Comptroller of Mackenzie, Mann & Company, Limited.

III.—"A" Statement of the floating liabilities of the Railway Companies embraced in the General Title of the Canadian Northern Railway System.

"B" Statement of balances due by Station Agents, etc, as of December 31st, 1913.

IV.—Declaration of D. B. Hanna, third Vice-President of the Canadian Northern Railway Company, as to the correctness of No. 3 "A".

V.—Memorandum bearing on certain acquired securities deposited with the Trustees under Trust Deed.

VI.—"A" Certified copy of Trust Deed to secure first Mortgage 4 per cent consolidated debenture stock and bonds, dated June 30th, 1903.

"B" Letter from National Trust Company, Limited, Toronto, *re* Canadian Northern Railway Company 4 per cent perpetual consolidated debenture Mortgage.

VII.—Memorandum relating to Marmora Railway and Mining Company, Brockville, Westport & Western Railway Central Ontario Railway, Bay of Quinte Railway, Irondale, Bancroft & Ottawa Railway, Canadian Northern Manitoba Railway, Qu'Appelle, Long Lake & Saskatchewan Railway, and the Canadian Northern System Terminals Limited.

VIII.—Certified copy of Trust Deed to secure an issue of first Mortgage 99—year debenture stock and / or bonds.

IX.—Memorandum by Mr. Ruel *re* lines in Manitoba leased from the Northern Pacific Railway Company.

X.—Statutory declaration by Mr. L. W. Mitchell *re* Manitoba leased lines.

XI.—Statement marked Schedule "A" showing securities pledged as collateral only, not directly realized on.

XII.—Statement marked Schedule "B" showing securities pledged as collateral to temporary loans.

XIII.—Certificate re Canadian Northern Railway four per cent consolidated debenture stock.

XIV.—Certificate *re* Canadian Northern Ontario Railway 4 per cent perpetual consolidated debenture stock.

XV.—Certificate *re* Duluth, Winnipeg, Pacific Railway Company, four per cent first Mortgage debenture stock.

XVI.—Certificate *re* certain securities held pending sale.

XVII.—Certificate *re* certain securities issuable.

XVIII.—Memorandum from Mr. L. W. Mitchell dated April 8th, 1914, *re* Canadian Northern Land Department.

XIX.—Letter of National Trust Company confirming No. 18, dated April 11th, 1914.

XX.—Certified copies of;—

"A" Trust Deed of February 1st, 1899.
"B" Trust Deed of February 15th, 1909.
"C" Trust Deed of November 19th, 1913.

XXI.—Declaration by R. P. Ormsby, Assistant Secretary, Canadian Northern Railway, as to Capital Stock of certain subsidiary Companies.

Certain of the above statements have been further verified by sworn declarations, and by certificates from the National Trust Company as Trustees, the Canadian Bank of Commerce as to the bank accounts and Mr. C. A. Masten, K.C., Barrister, etc.

We would particularly draw attention to statement No. 2 being a declaration from the Comptroller of the Contractors. Messrs Mackenzie, Mann & Company, Limited, that the Contractors have made no profit on their work for the Canadian Northern Railway, other than certain fully paid Common Stock, which is set out in a statement in our previous report. This declaration is borne out to our satisfaction, from our investigation of the books of said Contractors, and also of those of the Company.

We have the honour to be, Sir,
Your obedient servants,

G. A. Bell.
Financial Comptroller, Department of Railways and Canals.

J. C. Saunders.
Chief Accountant and Dominion Book-keeper Department of Finance.

Arthur Meighen, Esq., K.C.,
Solicitor General of Canada, Ottawa, Ont.

CANADIAN NORTHERN RAILWAY SYSTEM.

Particulars of Accounts Outstanding on Construction.

31st December, 1913.

SUMMARY.

British Columbia.	
Contractors' estimates and material account	$1,108,466 00
Contractors' drawback	2,077,448 71
Western lines.	
Contractors' estimates and drawback	892,275 41
Pay rolls and material accounts	1,071,799 31
Eastern lines.	
Contractors' drawback	1,537,797 67
Contractors' estimates	614,841 17
Construction material accounts	225,483 79
Equipment.	
General	1,539,863 87
All lines.	
Construction loans	12,194,551 33
	$21,262,527 26

CANADIAN NORTHERN RAILWAY SYSTEM.

Construction, Equipment, Terminals, Branch Lines, etc.

December 31st, 1913.

Expenditure.		
Can. Nor. Ry.—Construction, etc.	$109,095,627 25	
Equipment trusts	32,811,467 87	
		$141,907,095 12
Canadian Northern Pacific Ry		34,760,907 76
Canadian Northern Ontario Ry		52,815,623 10
Canadian Northern Quebec Ry		4,222,889 62
Duluth, Winnipeg & Pacific Ry		5,299,681 22
Halifax & South Western Ry		5,663,972 42
		$244,670,169 24

Receipts.		
Cash subsidies—Dominion.		
C. N. R.	$ 2,000,332 00	
C. N. A.	2,832,024 00	
C. N. P.	4,349,930 00	
C. N. O.	1,363,122 39	
C. N. O.	6,886,388 00	
C. N. O. (J.B.)	1,872,960 00	
C. N. Q.	707,563 83	
H. & S. W.	1,364,210 00	
Provincial.		
H. & S. W.	2,804,450 00	
C. N. R.	1,072,800 00	

Municipal.		
C. N. R.	50,000 00	
C. N. O.	20,000 00	
	$25,323,780 22	
Guaranteed securities.		
(Dom.) C.N.R. 3%	8,523,597 43	
" C.N.R. 3½%	6,873,890 93	
" C.N.A. 3½%	4,391,077 30	
(Alta) C.N.R. 4%	7,866,929 64	
" C.N.W. 4½%	2,407,230 70	
" C.N.W. 4½%	2,563,474 54	
(Sask.) C.N.R. 4%	8,695,043 96	
(Man.) C.N.R. 4%	12,437,344 33	
(Man.) C.N.R. 4%	4,001,734 33	
" C.N.R. 4%	2,987,173 33	
(B.C.) C.N.P. 4%	19,500,598 65	
" C.N.P. 4½%	1,453,171 47	
(Ont.) C.N.O. 3½%	5,591,977 96	
" C.N.O. 3½%	965,000 00	
(Dom.) C.N.O. 3½%	20,149,256 53	
	$108,407,501 10	
Other securities.		
C.N.R. 4%	17,602,398 05	
" 4% land	3,679,125 30	
" 5% income	12,875,175 99	
" 5% land	6,200,000 00	
" 5% notes	1,650,000 00	
C.N.O. 4%	6,882,713 13	
C.N.Q. 4%	2,421,164 82	
D.W.P. 4%	4,704,225 39	
H. & Y Bonds	675,000 00	
H. & S. W. land	175,090 11	
I. Rolling Stock Co	32,811,467 87	
		$223,407,641 98
Balance		$ 21,262,527 26

CANADIAN NORTHERN RAILWAY SYSTEM.

FLOATING LIABILITIES, AS UNDER, OF THE RAILWAY COMPANIES, EMBRACED IN THE GENERAL TITLE OF THE CANADIAN NORTHERN RAILWAY SYSTEM.

Canadian Northern Railway Co	$6,565,652 61
Canadian Northern Ontario Railway	767,059 21
Canadian Northern Quebec Railway	1,250,490 67
Quebec & Lake St. John Railway	683,466 88
Duluth, Winnipeg & Pacific Railway	522,293 99
Halifax & South Western Railway	191,261 16
Central Ontario Railway	190,291 11
Bay of Quinte Railway	173,114 58
Irondale, Bancroft & Ottawa Railway	7,949 00
Brockville, Westport & North Western Railway	56,549 09
	$ 10,408,128 30

CANADIAN NORTHERN RAILWAY SYSTEM.

Schedule "A"

SECURITIES PLEDGED AS COLLATERAL ONLY—NOT DIRECTLY REALIZED UPON.

	Date Mtge.		Collateral To
C. N. Alta. Ry. 3½% Dom. Gt. Deb. Stock	Mar., 1911	£733,561	C. N. Ry. 6% Gold Notes., $3,500,000.
C.N. Ont. Ry. 3½% Dom. Gt. Deb. Stock	Oct., 1911	293,837	C. N. Ry. 6% Gold Notes, $3,500,000.
C.N. Ry. 4% Deb. Stock Guart. by Alta	June, 1909	450,000	C. N. Ry. Secured Notes £2,000,000
C.N. Ry. 4% Deb. Stock Guart. by Sask'n	May, 1910	500,000	C. N. Ry. Secured Notes £2,000,000.
C.N. Ry. 4% Deb. Stock Guart. by Man	Mar. 1910	300,000	C. N. Ry. Secured Notes £2,000,000
C.N. Ry. 4% Deb. Stock Guart. by B. C	April, 1910	550,000	C. N. Ry. Secured Notes, £2,000,000.
C.N. Ry. 4% Perp. Cons. Deb. Stock	June, 1903	750,000	C. N. Ry. Secured Notes, £2,000,000.
C.N. Ry. 4% Perp. Cons. Deb. Stock	June, 1903	177,261	C. N. Ry. 5% Secured Notes, £450,000.
C.N.P. 4% Deb. Stock Guart. by B. C	April, 1910	392,739	C. N. Ry. 5% Secured Notes, £450,000
C.N. Ont. Ry. 4% Perp. Deb. Stock	June, 1909	532,192	C. N. Ont. 3½% Dom. Gt. Deb. Stock.
		£ 4,679,590	

Certified Correct,
D. B. Hanna,
Third Vice-President.

CANADIAN NORTHERN RAILWAY SYSTEM.

SCHEDULE "B."

SECURITIES PLEDGED AS COLLATERAL TO TEMPORARY LOANS.

—	Date Mortgage.		Market Value, Dec. 1913	[illegible]	Currency.
C.N. Ont. Ry. 4% Cons. Deb. Stock	June 1909	£ 525,000	75½	£ 396,375	$ 1,929,025 00
C.N.Ry. 4% Perp. Cons. Deb. Stock	June 1903	155,000	84	652,335	3,174,697 00
C.N.Ry. 4% Perp. Cons. Deb. Stock	June 1903	46,590	.....	.....	.....
C.N.Ry. 4% Perp. Cons. Deb. Stock	June 1903	175,000	.....	.....	.....
C.N.Ry. 4% Perp. Cons. Deb. Stock	June 1903	400,000	.....	.....	.....
C.N.Ry. 4% Deb. Stock Guart. by Alberta	June 1909	44,495	88	215,155	1,047,087 66
C.N.Ry. 4% Deb. Stock Guart. by Alberta	June 1909	200,000	.....	.....	.....
C.N.Ry. 5% Land Mtge. Deb. Stock	Nov. 1913	44,110	95	1,751,904	8,525,932 78
C.N.Ry. 5% Land Mtge. Deb. Stock	Nov. 1913	960,000	.....	.....	.....
C.N.Ry. 5% Land Mtge. Deb. Stock	Nov. 1913	840,000	.....	.....	.....
National Trust Company 4% Land Certs	.....	$ 1,657,500	.....	.....	1,500,000 00
C.N.Western Ry. 4½% Deb. Stock Guart. by Alberta	June 1912	£ 1,320,000	93	1,227,600	5,974,320 00
C.N.P. 4½ Term. Deb. Stock Guart. by British Columbia	July 1913	345,000	95	446,500	2,172,966 66
C.N.P. 4½% Term. Deb. Stock Guart. by British Columbia	.....	125,000	.....	.....	.....
					24,324,029 10
Amount of Loans outstanding against securities	.....	£ 4,254,219	.....	At Par...	20,703,865 00
Equity	.....	.....	.....	.....	3,620,164 10

Certified correct,

D. B. HANNA,
Third Vice-President.

CANADIAN NORTHERN RAILWAY.

4% PERPETUAL CONSOLIDATED DEBENTURE STOCK.

£ 10,297,544	Amount Stock issued as per statement filed.	
927,261	Held as collateral security to 5% note issues.	
900,000	Held by Canadian Bank of Commerce for safe keeping—See Certificate.	
26,590	Balance of amount issued and	£ 175,000
	held as collateral security	155,000
	to temporary loans in London	46,590
	as per statement already submitted.	400,000
£ 12,151,395		£ 776,590
£ 12,187,544	Amount created and authorized to be issued by Trustees. Certificate attached herewith.	
£ 26,149	Balance unissued.	

Certified correct,

D. B. HANNA,
Third Vice-President.

CANADIAN NORTHERN RAILWAY SYSTEM.

SCHEDULE "D."

SECURITIES ISSUABLE.

Canadian Northern Railway—				
4% Consolidated Perpetual Debenture Stock in Bank			£ 900,000	
Balance Issuable:				
On Mileage	£	334,934		
On Terminals		300,000	634,934	
			£ 1,534,934	$ 7,470,012 13
Canadian Northern Ry.—				
5% Land Mortgage Debenture Stock			£ 155,890	758,664 66
				$ 8,228,676 79

NOTE:—There is an equity in securities held as collateral to temporary loans as per statement . . . $ 3,620,164 00

Certified correct,

D. B. HANNA,
Third Vice-President.

RETURN

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REPORT in the matter of a Formal Investigation into the Causes which led to the British Steamer *Saturnia* touching the ground in the Lower Traverse, River St. Lawrence, on Tuesday, April 28, 1914, held in the Wreck Commissioner's Court, Montreal, on the 4th and 5th days of May, 1914, before Commander Henry St. George Lindsay, R.D., R.N.R., Dominion Wreck Commissioner, assisted by Captain Francis Nash and Captain Joseph Ostens Grey, acting as Assessors.

The British steamship *Saturnia*, official No. 129,489; gross tonnage, 8,611; and owned by the Saturnia Steamship Company, Limited, of Glasgow, and engaged in trading between Glasgow and Canadian ports, appears to have been well found and equipped in every respect, and sailed from Glasgow on April 18, 1914, with 300 passengers and a general cargo, and a crew of about 148 all told, and arrived at Father Point, in the gulf of St. Lawrence, on Monday, April 27, about 9.08 p.m., the vessel drawing 18 feet forward and 23 feet 6 inches aft. At 9.24 p.m. the vessel was boarded by Jules Lachance, a special Quebec pilot, and proceeded towards Quebec.

Everything seems to have gone well during the night, the weather being fine and clear, and the ship apparently making good the courses steered, which courses were given by the pilot from time to time. The master was informed by the pilot on his coming on board, that, as the Lower Traverse light vessel was not on her station, he intended to wait for daylight before taking the ship through that channel, to which the master agreed, and shortly after this the latter appears to have left the deck, leaving the pilot in charge. The weather continued fine, and the wind light from southwest, and at 4 a.m. the speed of the ship was reduced, Cape Goose being abeam at 4.08 a.m., and a S. 45 W. course, by compass, was then set. At 4.18 a.m. the engines were ordered full speed ahead by the pilot, and the vessel proceeded towards the Lower Traverse, the tide being flood, and running strong to the south and west, the vessel's speed must have been approximately from 18 to 19 knots over the ground. At 4.40 a.m. the vessel touched the ground, but did not stop, and it was found shortly after the stranding that Nos. 6 and 7 ballast tanks were leaking.

The vessel continued her voyage to Montreal via Quebec, without further incident, and after being discharged, was placed on the floating dock at Montreal, where it was found necessary to make temporary repairs to her bottom plates; the port propeller blades were also found to be bent, and also one blade on starboard propeller.

FINDING.

After carefully considering and reviewing the evidence adduced, the court is of opinion that the stranding of the Steamship *Saturnia*, in the Lower Traverse, river St. Lawrence, on the morning of the 28th of April, was caused by the action of Jules Lachance, the pilot, inasmuch as he appears to have had no confidence in himself as to the manner of navigating the vessel through this channel, and apparently did not make proper use of the usual day marks for safe navigation, and it is the unanimous opinion of the court that the vessel touched the ground on the south side of the channel, and close to the old Lower Traverse block, and this probably accounts for the pilot not seeing the buoy moored off the block, as the vessel must have passed almost over it just before or after striking the ground.

The court also considers that when in doubt as to his position, and lacking confidence in his ability as a pilot, he should have sent for the master to assist him in the navigation of the vessel.

The court therefore considers that the pilot did not show either ordinary skill or good judgment, in attempting to pass through the Lower Traverse channel under the existing conditions, and therefore suspends the license of Jules Lachance, the pilot, for a period of three months from this date.

In view of the master, David Taylor, knowing that the Lower Traverse lightship was not on her station, and the risks attending the navigating of these narrow channels with a strong flood tide, the court is of opinion that the master ought to have been on deck after passing Cape Goose, and censures him for this negligence.

The fact of the Lower Traverse light vessel not being on her station at the time of the casualty, does not appear to the court to have any bearing on the matter, as the *Saturnia* had passed the position where the light vessel would have been moored, some minutes before the accident, and, had the light vessel been considered necessary for safe navigation, both the master and the pilot were taking undue risks in trying to navigate the Lower Traverse with the full knowledge that the light vessel was not there.

Dated at Ottawa this ninth day of May, 1914.

N. ST. G. LINDSAY,
Dominion Wreck Commissioner.

Concurred in:

FRANCIS NASH,
J. O. GREY,
Assessors.

Read in open court, at Montreal, Quebec, this 11th day of May, 1914.

N. ST. G. LINDSAY,
Dominion Wreck Commissioner.

RETURN

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REPORT in the matter of a Formal Investigation into the Causes which led to the Stranding of the British Steamship *Montfort*, on Beauport Bank, River St. Lawrence, on Tuesday, April 28, 1914, held in the Wreck Commissioner's Court, Montreal, on Tuesday, May 5, 1914, before Commander Henry St. George Lindsay, R.D., R.N.R., Dominion Wreck Commissioner, assisted by Captain Francis Nash and Captain Joseph Ostens Grey, acting as Assessors.

The British steamship *Montfort*, official No. 110,568; gross tonnage, 6,578; owned by the Canadian Pacific Railway Company, Montreal, Canada, and engaged in the Canadian service, sailed from Antwerp, bound for Quebec and Montreal, on April 15, 1914, with 162 passengers and a general cargo, having on board a crew of 95 all told, and was apparently well found and equipped in every respect, and arrived at Father Point, in the gulf of St. Lawrence, on Monday, April 27, at 5.19 p.m., the ship drawing about 21 feet 7 inches forward and 21 feet 10 inches aft, and after embarking Francois Gaudreau, a special pilot for the Pilotage District of Quebec, proceeded on her voyage towards Quebec.

Everything appears to have gone well during the run up the Lower St. Lawrence, the vessel passing Quarantine at about 6.55 a.m., Tuesday, April, 28, the usual courses being steered, and the weather appears to have been fine and clear throughout the night and early morning. At 8.16, according to the company's regulations, all hands came on stations, and standby was ordered on the engine room telegraph. At 8.18 west end of Orleans island was abeam one-quarter of a mile off, and a course (W. by N. ¼ N.) was ordered by the pilot. At 8.19 the speed was reduced to half speed, and at 8.22 a.m. to slow. Shortly after this the vessel ran into a dense fog, and thinking that the vessel was too near to the Lévis shore, on account of his hearing the noise of a hydraulic rivetting machine on the port side, the pilot gave orders to port the helm, which was done, and the vessel's head swung off to N.W. by compass. About this time the leadsman reported four and a half fathoms, and before the next sounding could be taken the vessel took the ground on Beauport bank, about two and a half miles below Quebec, and one and one-quarter miles to the westward of the west point of the Isle of Orleans, where she remained until assisted off at 8 a.m. on the 29th. No apparent damage was reported after examination by divers at Montreal.

It would appear that about the time the vessel stranded the master superseded the pilot in the management of the ship, as he saw that the latter had apparently become bewildered as to the ship's position.

FINDING.

The court, after considering the evidence adduced in this case, is unanimous in its opinion that the stranding of the steamship *Montfort* was caused entirely by the want of skill and poor judgment displayed by Pilot Francois Gaudreau, inasmuch as he appears to have lost all knowledge of the position of his vessel after entering the fog, and the court considers that his local knowledge, and his knowledge of the tides and the ice movement, should have prompted him to do the only proper thing possible under the circumstances, and to anchor, until he found out his actual position.

The court therefore suspends the license of Francois Gaudreau, the pilot, for a period of three calendar months from this date.

No blame, in the opinion of the court, can be attached to the master and officers of the ship, as everything appears to have been done by them to assist in the proper navigation of the vessel, and the court considers that the master was perfectly justified in taking the ship out of the pilot's hands, although unfortunately not in time to prevent the stranding, and commends him for his action.

The fact that all the aids to navigation were not in place on April 27, in the opinion of the court, has no material bearing on this stranding.

Dated at Ottawa this ninth day of May, 1914.

H. ST. G. LINDSAY,
Dominion Wreck Commissioner.

Concurred in:

FRANCIS NASH,
J. O. GRAY,
Assessors.

Read in open court at Montreal, Quebec, this 11th day of May, 1914.

H. ST. G. LINDSAY,
Dominion Wreck Commissioner.